BIOLOGY NMDCAT-2022

SUPPORT AND MOVEMENT

Q.1 **All of the following are functions of endoskeleton in humans except:**
A. Protection to critical internal organs
B. Mineral homeostasis
C. Blood cell production
D. Thermoregulation

Q.2 **It is the most rigid form of connective tissue found in humans:**
A. Bone
B. Tendon
C. Cartilage
D. Blood

Q.3 **All of the following are the features of spongy bone except:**
A. Light in weight
B. Rich blood supply
C. Provides attachment sites for muscles
D. Highly porous

Q.4 **A flexible, elastic, non-living matrix called collagen is secreted by _____ during cartilage tissue formation.**
A. Stem cells
B. Osteoblasts
C. Chondrocytes
D. Osteocytes

Q.5 **All of the following functions are performed by the cartilage except:**
A. Attachment of muscles with bones
B. Covers ends of bones in joints
C. Formation of external pinnae of ear
D. Covers glottis during swallowing

Q.6 **Total number of cervical and thoracic vertebrae in human vertebral column is:**
A. 7
B. 14
C. 19
D. 33

Q.7 **These cells are equipped with phagocytic-like mechanism and involved in bone resorption and breakdown processes:**
A. Osteocytes
B. Osteogenic cells
C. Osteoclasts
D. Osteoblasts

Q.8 **Axial skeleton includes all except:**
A. Skull
B. Sternum
C. Clavicle
D. Ribs

Q.9 **Cranium is made up of:**
A. 2 paired and 4 unpaired bones
B. 2 unpaired and 4 paired
C. 2 paired and 2 unpaired
D. 4 paired and 4 unpaired

Q.10 **Lacrimal bone is:**
A. Paired bone of cranium
B. Paired bone of face
C. Unpaired bone of cranium
D. Unpaired bone of face

Q.11 **Four curvatures in vertebral column are helpful in providing:**
A. More protection to spinal cord
B. More strength
C. Attachment site for limbs
D. More CSF production

Q.12 **Vertebral column starts with which vertebra:**
A. Axis
B. Thoracic
C. Sacral
D. Atlas

Q.13 **It is an injury to a ligament:**
A. Fracture
B. Dislocation
C. Sprain
D. Osteoporosis

Q.14 **It is the chest bone in axial skeleton of human body:**
A. Hyoid
B. Sternum
C. Maxilla
D. Ribs

Q.15 **Number of bones in appendicular skeleton are:**
A. 126
B. 80
C. 206
D. 30

Q.16 **In children, rickets is characterized by all except:**
A. Bowed legs
B. Excess calcium in body
C. Deformed pelvis
D. Deficiency of vitamin 'D'

Q.17 **Which of the following secretes a watery fluid that lubricates and cushions joints?**
A. Tendon
B. Ligament
C. Synovium
D. Cartilage

Q.18 **The joint which allows only rotational movement is:**
A. Hinge joint
B. Pivot joint
C. Saddle joint
D. Multistage joint

Q.19 These joints are held together by short fibers embedded in connective tissue:

A. Fibrous joints
B. Hinge joints
C. Synovial joints
D. Ball and socket joints

Q.20 Proximal end of which bone is involved in formation of hip joint?

A. Tibia
B. Femur
C. Fibula
D. Humerus

Q.21 The shoulder and hip joints are example of:

A. Gliding
B. Pivot
C. Saddle
D. Ball and socket

Q.22 _____ develop in people who have high level of uric acid in their blood.

A. Osteoarthritis
B. Spondylosis
C. Gouty arthritis
D. Sprain

Q.23 During soft callus formation,_____ are involved in production of collagen fibres that connect the ends of broken bones.

A. Osteoblasts
B. Myeloblasts
C. Fibroblasts
D. Osteoclasts

Q.24 The functional partner of bone is:

A. Tendon
B. Ligament
C. Skeletal muscle
D. Fasciae

Q.25 Muscles are the specialized type of tissues having _____ origin.

A. Ectodermal
B. Endodermal
C. Mesodermal
D. Epidermal

Q.26 Non-polarizing region of sarcomere is called:

A. I-band
B. A-band
C. M-line
D. H-zone

Q.27 Color of red fibers of muscles is due to the presence of:

A. Glycogen
B. Hemoglobin
C. Oxyhemoglobin
D. Myoglobin

Q.28 These muscles are irregularly striped and involuntary:

A. Skeletal muscles
B. Gut smooth muscles
C. Cardiac muscles
D. Vascular smooth muscles

Q.29 Stimulation of a muscle fibre by a motor neuron occurs at:

A. Neuromuscular junction
B. Myofibril
C. Transverse tubules
D. Sarcoplasmic reticulum

Q.30 Complete immobilization of muscle leads to:

A. Muscle atrophy
B. Muscle hyperplasia
C. Muscle hypertrophy
D. Muscle tetany

Q.31 After death, the body becomes stiff due to deficit of ATP. This condition is called:

A. Spasm
B. Rigor mortis
C. Tetanus
D. Spastic paralysis

Q.32 Origin of skeletal muscle is attached to:

A. Immoveable bone through tendon
B. Immoveable bone through ligament
C. Moveable bone through tendon
D. Moveable bone through ligament

Q.33 With the routine exercise, all of the following changes occur in skeletal muscle except:

A. Increase in number of mitochondria
B. Increase in number of muscle fibers
C. Increase in myoglobin
D. Increase in blood capillaries

Q.34 Function of the skeletal muscles is:

A. Moves the skeleton
B. Pumps blood
C. Vasodilation
D. Propel food through GIT

Q.35 The hydrolysis of the ATP that is bound to myosin causes:

A. Release of myosin head from actin filament
B. Reversible binding of actin filament
C. Irreversible binding of actin filament
D. Phosphorylation of actin filament

Q.36 Sarcomeres are the part of:

A. Myofibrils
B. Thick filaments
C. Thin filaments
D. Actin molecules

Q.37 When a sarcomere contracts, then all of the following can occur except:

A. I-band shortens
B. A-band shortens
C. Z-lines come closer
D. H-zone disappears

Q.38 T-tubule is the part of:

A. Myofibril
B. Neuron
C. Endoplasmic reticulum
D. Sarcolemma

Q.39 Energy for muscles contraction comes from ATP. The supply of ATP is normally maintained by:

A. Glucose
B. Glycogen
C. Starch
D. Creatine phosphate

Q.40 The H-zone in the skeletal muscle's fibre is due to:

A. The absence of myofibrils in the central portion of A-band
B. The central gap between actin filaments extending through myosin filaments in the A-band
C. The central gap between myosin filaments in the A-band
D. Extension of myosin filaments in the central portion of the A-band

Q.41 I-band contains:

A. Actin filaments only
B. Mainly actin partly myosin
C. Myosin filaments only
D. Mainly myosin partly actin

Q.42 Sarcolemma invagination and adjacent sarcoplasmic reticulum membranes are collectively called as:

A. T-tubule
B. T-system
C. Triad
D. Ca^{+2} sacs

Q.43 It is a complex of three polypeptide chains:

A. Actin
B. Troponin
C. Myosin
D. Tropomyosin

Q.44 A motor unit is developed by:

A. Single motor axon innervating multiple muscle bundles
B. Multiple motor axons innervating single muscle bundle
C. Single motor axon innervating multiple muscle fibers
D. Multiple motor axons innervating multiple muscle fibers

Q.45 The boundary of each sarcomere is defined by a line called Z-line, which is actually the part of:

A. A-band
B. I-band
C. H-zone
D. M-line

Q.46 These are most primitive type of muscles:

A. Cardiac muscles
B. Smooth muscles
C. Skeletal muscles
D. Striated muscles

Q.47 Which of the following is correctly matched?

	Feature	Bone	Cartilage
A.	Blood vessels	×	✓
B.	Living Cells	✓	×
C.	Collagen	✓	✓
D.	Calcium phosphate	✓	✓

Q.48 A myosin molecule has_____ polypeptide chain/s in its tail which terminates in _____ globular heads.

A. 2, 2
B. 4, 4
C. 4, 2
D. 1, 2

Q.49 Put the following statement in proper order to describe muscle contraction:

1. **Signals sent by CNS via motor neuron**
2. **Generation of action potential in the sarcolemma**
3. **Release of Ca^{+2} from sarcoplasmic reticulum**
4. **The neurotransmitter acetylcholine released**
5. **Sarcomere shortens**

A. 1→2→4→3→5
B. 1→4→3→2→5
C. 1→4→2→3→5
D. 5→4→3→2→1

Q.50 It typically begins gradually with stiffness of jaws and neck muscles and progresses to spasm of trunk and limb muscles:

A. Muscle fatigue
B. Tetany
C. Muscle cramp
D. Tetanus

Q.51 Clavicle connects:

A. Humerus with sternum
B. Coracoid with sternum
C. Scapula with sternum
D. Cervical vertebrae with sternum

Q.52 Which one of following receives the nerves from somatic nervous system?

A. Skeletal muscle B. Smooth muscle
C. Cardiac muscle D. All involuntary muscles

Q.53 The collagen fibers of bones are hardened by deposit of:

A. Calcium phosphate B. Calcium chloride
C. Calcium nitrate D. Magnesium phosphate

Q.54 Human wrist and palm contain following bones respectively:

A. Carpals and tarsals B. Tarsal and metatarsal
C. Carpals and metacarpals D. Metacarpal and phalanges

Q.55 Bones protect critical internal organs like:

A. Brain, spinal cord, heart B. Brain, all nerves, spinal cord
C. Heart, stomach, eyes D. Spinal cord, pinna of ears, lungs

Q.56 For muscle contraction, Ca^{+2} in sarcoplasm are released from:

A. T-tubule B. Troponin
C. Sarcoplasmic reticulum D. Myosin filament

Q.57 All bones in skull are immovable except:

A. Maxilla B. Mandible
C. Nasal D. Lacrimal

Q.58 Skull forms joint with:

A. Atlas B. 1st thoracic vertebrae
C. Axis D. Last cervical vertebrae

Q.59 Longest bone of lower limb is:

A. Ulna B. Tibia
C. Radius D. Femur

Q.60 Phagocytic cells of bones are called as:

A. Fibroblasts B. Osteoclasts
C. Osteoblasts D. Osteocytes

Q.61 Ilium is the part of:

A. Small intestine B. Pulmonary tract
C. Pectoral girdle D. Pelvic girdle

Q.62 During muscle contraction in humans, source of energy is:

A. Chemical B. Physical
C. Mechanical D. Kinetic

Q.63 The sliding protein of muscle:

A. Tubulin B. Myoglobin
C. Myosin D. Actin

Q.64 Vertebrae are named according to:

A. Structure B. Formation
C. Functions D. Location

Q.65 Muscle fatigue is due to accumulation of:

A. Lactic acid B. Acetic acid
C. Pyruvic acid D. Palmitic acid

Q.66 All of the following are true regarding muscle contraction except:

A. I band shortens B. A band remains unchanged
C. Z-lines gets closer D. M-line disappears

Q.67 Small bone located at the base of the skull which does not articulate with any other bone of the head is:

A. Incus B. Malleus
C. Hyoid D. Stapes

Q.68 Increased excitability of neurons, loss of sensations and respiratory arrest are the characteristic features of:

A. Muscle fatigue B. Tetanus
C. Muscular tetany D. Muscle cramps

Q.69 Vestigial bone found in human skeleton is:

A. Sacrum B. Coxal bone
C. Last lumber vertebrae D. Coccyx

Q.70 Osteoporosis is more common in aged women due to deficiency of_____.

A. FSH B. Estrogen
C. LH D. Progesterone

Q.71 Site for the attachment of pelvic girdle is:

A. Sternum B. Ribs
C. Vertebral column D. Skull

Q.72 Myoglobin is found in:

A. Blood B. Spleen
C. Bones D. Muscles

Q.73 The dark bands of a skeletal muscle are known as

A. Isotropic bands B. Intercalated disc
C. Anisotropic bands D. Cross bridges

Q.74 Total number of "Free Ribs" in human body is

A. 1 B. 4
C. 2 D. 8

Q.75 Knee joint and elbow joint are example of:

A. Ball and socket joint B. Cartilaginous joint
C. Hinge joint D. Fibrous joint

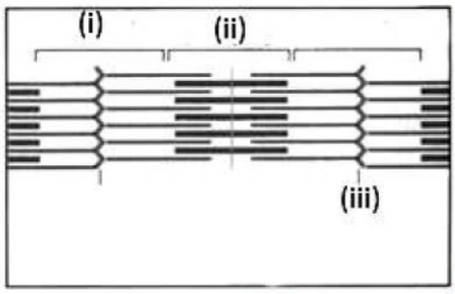
Q.76 _____is dense connective tissue that surrounds entire muscles.

A. Tendon B. Epimysium
C. Ligament D. Perimysium

Q.77 Bundle of collagen, non-elastic fibres that attach muscle to bone are:

A. Capsule B. Tendon
C. Belly D. Ligament

Q.78 In the following diagram of skeletal muscle bands i, ii and iii are representing:



	(i)	(ii)	(iii)
A.	A band	I band	H zone
B.	I band	A band	Z line
C.	M line	Z line	H line
D.	H zone	I band	A band

Q.79 Backbone is formed by vertebral column, which extends from _____to_____.

A. Skull to pelvis B. Skull to sacrum
C. Neck to sacrum D. Neck to pelvis

Q.80 Pelvic girdle attaches the hind limb with _____part of vertebral column.

A. Sacral B. Pelvic
C. Coccygeal D. Lumbar

Q.81 Elbow joint is an example of:

A. Fibrous joint B. Cartilaginous joint
C. Synovial joint D. Fixed joint

Q.82 End of long bones are covered by:

A. Tendons B. Cartilage
C. Ligaments D. Muscles

Q.83 Binding site of calcium is present on:

A. Thin filament B. Troponin
C. Actin D. Myofilament

Q.84 The structural and functional unit of muscles are _____ and _____, respectively:

A. Muscle fiber, sacromere B. Myofilaments, muscle fibers
C. Myofilaments, sacromere D. Sarcomere, muscle fiber

Q.85 In muscles, the supply of ATP during strenuous activity is met by storing substance called as:

A. Glycogen B. Glucose
C. Creatine Phosphate D. Dextrin

Q.86 At rest, _____of the lactic acid is broken aerobically and its energy is used to change remaining lactic acid into glucose.

A. 20% B. 40%
C. 80% D. 100%

Q.87 Release of Ca^{+2} into cytosol from ER is controlled by:

A. Ca^{+2} gates B. Ca^{+2} pumps
C. Na/K pump D. Voltage gates

Q.88 In all or none principle, all the fibrils of _____ participate in response.

A. Muscle fibers B. Muscle bundle
C. Muscles D. Myofilaments

Q.89 In a motor unit, how many motor neurons innervate muscle fibers?

A. 1 B. 2
C. 3 D. Equal to number of muscle fibers

Q.90 Cyclic activity of cross bridges is carried out directly due to the continuous supply of:

A. Nutrients B. Blood
C. ATP D. Urea

Q.91 Thin filament extends across the:

A. I-band only B. A-band only
C. H-zone and I-band D. A and I-bands

Q.92 The number of vertebrae in coccyx are:

A. 2 B. 3
C. 4 D. 5

Q.93 Which of the following statements concerning the role of Ca^{++} in the contraction of skeletal muscle is correct?

A. The mitochondria act as a store of Ca^{++} for the contractile process
B. Ca^{++} entry across the plasma membrane is important in sustaining the contraction of skeletal muscle
C. A rise in intracellular Ca^{++} allows actin to interact with myosin
D. The tension of a skeletal muscle fibre is partly regulated by G protein

Q.94 The function of the T-tubules in muscle contraction is to_____?

A. Make and store glycogen
B. Release Ca^{++} into the cell interior and then pick it up again
C. Make the action potential deep into the muscle cells
D. To hamper the nerve impulse

Q.95 The bone dissolving cells are called:

A. osteoclast B. osteoblasts
C. osteocytes D. fibroblasts

Q.96 Contraction can be sustained for a long period of time by:

A. skeletal muscles B. smooth muscles
C. cardiac muscles D. all of these

Q.97 The disorder in which bones are porous and thin but bone composition normal is?

A. Osteomalacia B. Osteoporosis
C. Rickets D. Arthritis

Q.98 Shank region have total bone/s?

A. one B. two
C. five D. eight

Q.99 Bone is surrounded by a membrane called:

A. Perichondrium B. Prostomium
C. Perimycium D. Periosteum

Q.100 The color of bone marrow is:

A. Red B. Yellow
C. Orange D. Both a and b

Q.101 Fatigue free muscles are:

A. Striped B. Unstriped
C. Cardiac D. Triceps

Q.102 SarcoIemma is the membrane around:

A. Bone B. Joints
C. Muscle fiber D. Heart

Q.103 Regeneration of cartilage is carried on by:

A. collagenous fibers B. blood vessels
C. perichondrium D. matrix

Q.104 Bones are held together in the joints by:

A. tendons B. smooth muscles
C. ligaments D. nerves

Q.105 Bicep muscles are attached to the humerus by:

A. Tendon B. Ligaments
C. Elastic fibers D. Areolar

Q.106 The process of bone formation is called:

A. Calcification B. Chondrification
C. Decalcification D. Ossification

Q.107 The sites where the motor nerve impulse is transmitted from the nerve endings to the skeletal muscle cell membranes are the

A. neuromuscular junction B. sarcomeres
C. myofilaments D. Z-discs

Q.108 Myoglobin has a special function in muscle tissue:

A. it breaks down glycogen B. it is a contractile protein
C. it holds a reserve supply of oxygen D. none of these

Q.109 A network of tubules that runs through compact bone is called the:

A. Haversian canal B. Periosteum
C. Marrow D. Joints

Q.110 Heart muscles are called:

A. Smooth muscles B. Myogenic muscles
C. Striated muscles D. Skeletal muscles

Q.111 The human sacrum consists of Vertebrae?

A. 2 B. 3
C. 4 D. 5

Q.112 Mature cells of cartilage are:

A. Chondrocytes B. Osteocytes
C. Osteoblasts D. Osteoclasts

Q.113 The remodelling of bone is a function of which cells?

A. Chondrocytes and osteocytes B. osteoblasts and osteoclasts
C. Chondroblasts and osteoclasts D. Osteoblasts and osteocytes

Q.114 In skeletal muscle, calcium facilitates contraction by binding to

A. Tropomyosin B. Actin
C. Troponin D. Myosin

Q.115 In which of the following disorders the structure and function of normal spinal cord is damaged?

A. Arthritis B. Sciatica
C. Spondylosis D. Disc slip

Q.116 Collagen type-II is found in

A. Muscle B. Bone
C. Cartilage D. All

Q.117 Bone contains 35% of organic portion among which % are glycoproteins?

A. 65% B. 70%
C. 90% D. 10%

Q.118 Perichondrium is the membrane which surrounds:

A. Hard bone B. Compact bone
C. Spongy bone D. None

Q.119 Which of the following cells are multinucleated?

A. Osteoblasts B. Osteocytes
C. Osteoclasts D. Chondrocytes

Q.120 In sarcomere H-zone is dissected by

A. A-band B. M-line
C. I-band D. Z-line

Q.121 Which of the given muscle cell are multinucleated?

A. Cardiac B. Skeletal
C. Smooth D. Both a and c

Q.122 Which of the given muscles is/are striated muscles?

A. Skeletal B. Cardiac
C. Both D. None

Q.123 _____% of the energy expended in muscles contraction is used in work?

A. 65% B. 35%
C. 56% D. 70%

Q.124 Tetanospasmin is produced by Gram +ive spore producing bacteria which causes:

A. Tetany B. Tetanus
C. Both D. None

Q.125 Face contains_____unpaired bone?

A. 3 B. 4
C. 8 D. None

Q.126 The number of bones found in pelvic girdle is?

A. 2 B. 4
C. 6 D. None

Q.127 Which of the given cells play major role in matrix production?

A. Osteoblasts B. Osteocytes
C. Osteoclasts D. Myocytes

Q.128 Cartilage heals slowly because:

A. It has no osteoclasts B. It has no collagen-I
C. It has no blood vessels D. Both b and c

Q.129 Which of the following have role in bone resorbtion?

A. Paratharmone B. Osteoclasts
C. Calcitonin D. Both a and b

Q.130 Cartilages have _____% of inorganic salt?

A. 35% B. 65%
C. 30% D. None

Q.131 Sciatica is a disorder related to_____?

A. legs B. Arms
C. Skull D. All

Q.132 Which of the following is/are auto-immune disorder?

A. Osteoarthritis B. Rheumatoid arthritis
C. Gouty arthritis D. Both b and c

Q.133 Which of the given diseases is genetical?

A. Tetanus B. Disc slip
C. Gout D. None

Q.134 Injury of ligaments is called

A. Spondylosis B. Sprain
C. Disc slip D. Sciatica

Q.135 Muscles are originated from

A. Ectoderm B. Mesoderm
C. Endoderm D. Hypoblast

Q.136 Branched cells, irregular striation and involuntary control are the characteristics of:

A. Skeletal muscles cells B. Smooth muscles cells
C. Cardiac muscles cells D. Both a and c

Q.137 Which of the given characteristics is not correct about skeletal muscle cells?

A. Voluntary B. Branched
C. Multinucleated D. All are correct

Q.138 Diameter of muscle fiber is _____

A. 2-10 B. 10-100
C. 10-30 D. 1-2

Q.139 During molecular contraction the Ca^{+} attach with_____?

A. Actin B. Tropomyosin
C. Troponin D. Myosin

Q.140 A —band is due to:

A. Actin B. Myosin
C. Tropomyosin D. Troponin

Q.141 Diameter of myofibril is_____µm?

A. 10-100 B. 10-20
C. 2-3 D. None

Q.142 The boundaries of sarcomere are_____?

A. Two H —zones B. Two M —lines
C. Two Z —lines D. None

Q.143 Deficiency of Ca^{++} may cause

A. Tetanus B. Tetany
C. Both D. None

Q.144 The sarcoplasmic reticulum of the muscle fiber reaccumulate the Ca^{++} by

A. Active transport B. Passive transport
C. Diffusion D. None

Q.145 Cross bridges are found in

A. Thin filament B. Myosin filament
C. Actin filament D. Both a and b

Q.146 Cramps occur due to

A. Over use of muscles B. Deficiency of ions
C. Both D. None

Q.147 The number of bones in vertebral column is

A. 22 B. 28
C. 26 D. 33

Q.148 Which of the given bone/s have no joints?

A. Coxal bone B. sternum
C. Both D. None

Q.149 Which of the following is paired bone?

A. Hyoid bone B. Vomer
C. Occipital D. Temporal

Q.150 Cranium number of unpaired bones?

A. 4 B. 6
C. 8 D. None

Q.151 The joints in the wrist _____Joints?

A. Cartilaginous B. Fibrous
C. Synovial D. None

Q.152 Hip joint is the example of joint?

A. Hinge joint B. Ball and socket joint
C. Cartilaginous joint D. fibrous joints

Q.153 The pain feeling in narrow muscles of buttock is due to

A. Spondylosis B. Arthritis
C. Piriformis syndrome D. None

Q.154 The healing time for simple fracture in small or medium size bone in adult is _____ weeks?

A. 2-6 B. 2-26
C. 6-8 D. 4-20

Q.155 The bone fracture in which the skin get rupture is called

A. Compound fracture B. Open fracture
C. Both D. None

Q.156 Cartilage contains _____% of inorganic salt.

A. 35% B. 65%
C. 90% D. None

Q.157 Which one is multinucleated cell?

A. Osteocyte B. Skeletal muscle cell
C. Both D. None

Q.158 _____% of organic portion of bone contain collagen.

A. 65% B. 70%
C. 90% D. 35%

Q.159 Which one causes resorbtion?

A. Cells of collecting ducts B. Osteoclast cells
C. Cells of proximal D. Both a & c

Q.160 Total no. of bones in trunk?

A. 26 B. 50
C. 126 D. None

Q.161 Which cells have stopped their bone forming capacity?

A. Osteoblast cells B. Osteoclast cells
C. Both D. None

Q.162 Crystals of Hydroxyapatite are found in

A. Hyaline cartilage B. Fibrous cartilage
C. Elastic cartilage D. None

Q.163 Longest cytoplasmic extensions are found in?

A. Osteoblasts B. Osteocytes
C. Osteoclasts D. Chondrocytes

Q.164 Total no. of bones in the pectoral bone in the human female?

A. 2 B. 4
C. 6 D. 8

Q.165 Largest bone of face is_____?

A. Zygomatic B. Mandible
C. Maxilla D. Parietal

Q.166 Cartilaginous joints are found in?

A. Knee B. Wrist
C. Elbow D. Hip

Q.167 AnkIe joints are_____?

A. Ball & Socket B. Synovial
C. Freely movable D. Cartilaginous

Q.168 Tetanospasmin is secreted from bacteria which is_____?

A. Coci B. Bacillus
C. vibro D. G -ive

Q.169 Tetanospasmin blocks the nerve impulses from to muscle?

A. Cerebrum B. Thalamus
C. Spinal cord D. Limbic system

Q.170 The atlas and axis vertebrae are located in.

A. Lumbar region B. Cervical region
C. Thoracic region D. Pelvic region

Q.171 Hip joint and shoulder joints are examples of

A. Cartilaginous joint B. Synovial joint
C. Hinge joint D. Ball and socket joint

Q.172 SkeletaI muscles contain dark band, which are anisotropic, are called

A. A band B. I band
C. Z band D. M line

Q.173 The acetabulum provides the articular surface for the

A. Humerus B. Femur
C. Pelvis D. Fibula

Q.174 Scapula is connected with sternum by

A. Ribs B. Carpals
C. Clavicle D. Atlas

Q.175 Which statement correctly describes the smooth muscles?

A. Unstriated involuntary with spindle shape cells
B. Unstriated involuntary with multinucleate cells
C. Unstriated involuntary with uninucleate cells
D. Unstriated involuntary with spindle shape cell

Q.176 Thin myofilaments consist of

A. Actin, myosin, troponin B. Actin, tropomyosin. troponin
C. Actin, tropomyosin, fibrin D. Actin, myoglobin, troponin

Q.177 Which of the following changes occur when skeletal muscle contracts?

A. The A bands shorten B. The I hand shorten
C. The Z line move further apart D. The H zone becomes more visible

Q.178 A human internal organ is protected mainly by the

A. Hydrostatic skeleton B. Axial skeleton
C. Exoskeleton D. Appendicular skeleton

Q.179 Blood cell production occur in

A. Red bone marrow B. Yellow bone marrow
C. Both D. None

Q.180 Which of the following bones in the human arm would correspond to the femur in the leg?

A. Radius
B. Ulna
C. Tibia
D. Humorous

Q.181 At the distal end the femur forms knee joint with the proximal end of two parallel bones called

A. Tibia and fibula
B. Radius and ulna
C. Carpals and metacarpals
D. Tarsal and metatarsal

Q.182 Which of these is mismatched?

A. Slightly moveable joint vertebrae
B. Hinge joint hip
C. Synovial joint elbow
D. Immoveable joint sutures in cranium

Q.183 The deep inflowing of the muscle fibre membrane is called

A. Sarcoplasmic reticula
B. Z lines
C. T tubules
D. Sarcomeres

Q.184 Bone dissolving cells ore called

A. Chondrocytes
B. Osteoblasts
C. Osteoclasts
D. Osteocytes

Q.185 Which of the following cartilage is found at the end of long bones?

A. Calcified
B. Fibrous
C. Clastic
D. Hyaline

Q.186 At times ligaments are overstretched or torn. It is called

A. Sprain
B. Dislocation
C. Fracture
D. Tension

Q.187 Which ion is essential for muscle contraction?

A. Na
B. K
C. Ca
D. Cl

Q.188 Human shall is comprised of_____ bones

A. 8
B. 14
C. 22
D. 32

Q.189 _____vertebra are said to be the "strongest vertebra"

A. Cervical
B. Thoracic
C. Lumbar
D. Pelvic

Q.190 All are parts of axial skeleton except

A. Skull
B. Vertebral column
C. Rib cage & sternum
D. Pelvic girdle

Q.191 Smallest bone in human body is

A. Stipes
B. Maleus
C. Incus
D. Patella

Q.192 Hardest bone in human body is

A. Femur
B. Tibia
C. Humerus
D. Mandible

Q.193 Heaviest / bone strongest in human body is

A. Femur
B. Tibia
C. Humerus
D. Mandible

Q.194 Total number of "Free Ribs" in human body is

A. 1
B. 2
C. 4
D. 8

Q.195 All are types of synovial joint except

A. Ball & socket joint
B. Hinge joint
C. Pivot joint
D. Cartilaginous joint

Q.196 Most mobile and least stable type of joint is

A. Ball & socket joint
B. Pivot joint
C. Fibrous joint
D. Cartilaginous joint

Q.197 Knee joint and elbow joint are example of

A. Ball & socket joint
B. Hinge joint
C. Cartilaginous joint
D. Fibrous joint

Q.198 Hinge joint allows movements in_____directions and _____planes

A. 2, 1
B. 2, 2
C. 2, many
D. Many, 2

Q.199 _____is dense connective tissue that surrounds entire muscles

A. Tend
B. Ligament
C. Epimyoium
D. Perimysium

Q.200 Regarding contraction of muscle (and thus Sarcomere) all are true except

A. A band exhibit no change
B. I – band shortens
C. H – band exhibit no change
D. Z lines move close to each other

Q.201 Thin filaments in Sarcomere structure are comprised of

A. Actin
B. Tropomyosin
C. Troponin C
D. All "A", "B", "C"

Q.202 "Cross bridges" are present on

A. Actin
B. Tropomyosin
C. Troponin
D. Myosin

Q.203 Regarding skeletal muscle structure, the bands which contains only thick filaments

A. A band
B. H – band
C. I band
D. Both "A" and "B"

Q.204 _____are known as basic contractile units of skeletal and cardiac muscles

A. Sarcomeres
B. Muscle fibers
C. Bundles of muscle fibers
D. Myofibrils

Q.205 _____covers binding sites on actin

A. Tropomyosin
B. Troponin C
C. Myosin
D. None of "A", "B", "C"

Q.206 _____is calcium binding protein in muscle

A. Actin
B. Myosin
C. Tropomyosin
D. Troponin C

Q.207 Practically speaking_____ is muscle cell

A. Muscle fiber
B. Fascicle
C. Sarcomere
D. Myo Filament

Q.208 Tendon attaches

A. Bone to bone
B. Muscle to bone
C. Muscle to muscle
D. Muscle to skin

Q.209 _____muscles are striated and involuntary

A. Skeletal
B. Cardiac
C. Gut smooth
D. Vascular smooth

Q.210 Actin and myosin do not form Sarcomeres is

A. Skeletal muscles
B. Cardiac muscles
C. Smooth muscles
D. Both "B" and "C"

Q.211 When action potential travels along „T tubules" in skeletal muscles it causes opening of Ca channels in

A. Sarcoplasm
B. Sarcoplasmic reticulum
C. Sarcolemma
D. Both "B" and "C"

Q.212 In skeletal muscle contraction – relaxation process which of the following process does not utilize "ATP"

A. Attachment of „cross" bridges with binging sites
B. Cross – bridge cycling
C. Pumping of Ca^{++} from Sarcoplasm to sarcoplasmic reticulum
D. Detachment of „cross bridges" from binding sites

Q.213 Which is related to cramp

A. Titanic contraction of entire muscle
B. It causing the muscle to become taut & painful
C. It lasts for just few seconds to serval hours
D. All "A", "B", "C"

Q.214 Modified form of smooth endoplasmic reticulum present in muscle is

A. Sacroplasmic reticulum
B. Ectoplasmic reticulum
C. Myoplasmic reticulum
D. None of these

Q.215 Clavicle bone provide connection between

A. Scapula & sternum
B. Radius & Ulna
C. Ribs & sternum
D. Humerus & scapula

Q.216 Each muscle fibre is surrounded by a modified cell membrane called as

A. Sarcolemma
B. Sarcoplasm
C. Both "A" and "B"
D. None of these

Q.217 Compact bone makes up the_____part of bone

A. Rounded head of long bone B. Shaft of the long bone
C. Both "A" and "B" D. None of these

Q.218 Modified form of synapse is

A. Neuromuscular junction B. Synapse of motor & sensory neuron
C. Synapse of motor & inter neuron D. Both "B" and "C"

Q.219 Which muscle is self-stimulating & not fatigued?

A. Smooth muscle B. Cardiac muscle
C. Skeletal muscle D. None of these

Q.220 Myosin tail consist of _____ long polypeptide

A. One B. Two
C. Three D. Four

Q.221 Which of following skeletal muscle fibres contains few mitochondria

A. Slow / tonic muscle fibres B. Fast / twitch muscle fibres
C. Both "A" and "B" D. None of these

Q.222 Z – lines get closer in

A. Muscle contraction B. Muscle relaxation
C. Both "A" and "B" D. None of these

Q.223 Thousands of T – tubules of each muscle cell are collectively known as

A. T – tubule & terminal portion B. T – system
C. Sarcomere D. Sarcoplasmic reticulum

Q.224 Rib cage gives the protection to the organs except

A. Heart B. Lungs
C. Liver D. Intestine

Q.225 Gliding joint present between

A. Vertebrae, wrist & ankle bones B. Between bones of skull
C. Elbow, knee & finger joints D. Sacrum & illium of pelvic girdle

Q.226 Which of following receives the nerves from voluntary nervous system?

A. Skeletal muscle B. Cardiac muscle
C. Smooth muscle D. All "A", "B", "C"

Q.227 Z – line is mid – line of

A. A – band B. I – band
C. H – zone D. M – band

Q.228 The collagen fibres of bone are hardened by deposit of

A. Ca – phosphate B. Ca – nitrate
C. Ca – chloride D. Mg – phosphate

Q.229 Mineral homeostasis in bones is maintained by

A. Positive feedback mechanism B. Negative feedback mechanism
C. Both "A" and "B" D. None of these

Q.230 Complete immobilization of muscle leads to

A. Muscle atrophy B. Muscle hypertrophy
C. Muscle hyperplasia D. None of above

Q.231 Which cell is related to cartilage?

A. Osteocyte B. Osteoblast
C. Osteoclast D. Chondrocytes

Q.232 The scapula is a flat, triangular shaped bone which covers a number of anterior ribs, & at one end is a concave depress ion which is known as _____

A. Acetabulum cavity B. Gleniod cavity
C. Formen triosseum D. Nucleus pulposus

Q.233 Origin of skeletal muscle is attached to which part of skeleton

A. A fixed non movable part of the skeleton B. A movable part of skeleton
C. Slightly movable part of skeleton D. None of these

Q.234 Low Ca^{++} level in blood causes the _____ muscular disorder mainly

A. Muscle fatigue B. Tetany
C. Tetanus D. Pulled muscle

Q.235 When the triceps muscle contract which effect is observed

A. Straightening of arm at elbow joint B. Bending of arm at elbow joint
C. No effect is observed D. Both "A" and "B"

Q.236 The majority of muscle tissue in our body (Human body) is

A. Skeletal muscle
B. Cardiac muscle
C. Smooth muscle
D. None of these

Q.237 Myofibril contains _____

A. One Sarcomere
B. Two Sarcomere
C. Three Sarcomere
D. Many Sarcomere

Q.238 Cardiac muscles are:

A. Voluntary
B. Involuntary
C. Both a and b
D. None of the above

Q.239 The thick filament which are 16 mm in diameter are composed of:

A. Actin
B. Myosin
C. Tropomyosin
D. Troponin

Q.240 Muscle fatigue is caused by:

A. CO_2
B. Accumulation of lactic acid
C. Fumaric acid
D. Ethyl alcohol

Q.241 Brachioradialis causes the uplift of:

A. Radius
B. Ulna
C. Both A and B
D. Humerus

Q.242 Thin filament in myofibrils consists of:

A. Actin, tropomyosin, troponin
B. Z line
C. Myosin
D. Sarcomere

Q.243 The contraction of striated muscle is initiated by the release of energy in the presence of:

A. Acetyl choline
B. Calcium ion
C. Chloride ion
D. Iron

Q.244 Which of the following changes occur when skeletal muscle contracts?

A. The A band shorten
B. The I band shorten
C. The Z-line slide farther apart
D. The actin filament contract

Q.245 Which of these is a direct source of energy for muscle contraction?

A. ATP
B. Lactic acid
C. Creatine phosphate
D. Both a and b

Q.246 When muscle contracts:

A. Sarcomeres increases in size
B. Myosin slides past actin
C. Lactic acid is produced
D. Both A and B

Q.247 Which is the end of muscle which remains fixed when muscles contracts?

A. Insertion
B. Origin
C. Tendon
D. Belly

Q.248 Muscle is connected to bone by:

A. Tendon
B. Ligament
C. Z-line
D. Cross briges

Q.249 Tetanus is caused by:

A. Bacteria
B. Virus
C. Fungi
D. Clostridium tetani

Q.250 Skeletal muscle fibers have diameter:

A. 100-200 µ
B. 10-100 µ
C. 10-100 nm
D. 100-1000 µ

Q.251 Muscles in the Gut Wall are:

A. Smooth
B. Skeletal
C. Cardiac
D. Voluntary

Q.252 Which of the following muscle straightens the Elbow Joint?

A. Brachialis
B. Triceps
C. Biceps
D. Brachioradialis

Q.253 Slightly elastic connective tissues that attach bone to bone are called:

A. Tendons
B. Brachialis
C. Brachioradialis
D. Ligament

Q.254 Skeletal muscles are called striated (stripped) because of presence of:

A. Red and Yellow band
B. White and Yellow band
C. Alternating light and dark band
D. Red and black band

Q.255 The earliest form of muscles to evolve is:

A. Cardiac muscles B. Skeletal muscles
C. Smooth muscles D. Involuntary muscles

Q.256 Each musle fiber is surrounded by a membrane which is called:

A. Sarcomere B. Sarcolemma
C. Twitch fiber D. Capsule

Q.257 Which disease is caused by low calcium in the blood?

A. Tetany B. Cramp
C. Muscle fatigue D. Sciatica

Q.258 When calcium ions are released from the sarcoplasmic reticulum they bind with ---------- during muscle contraction:

A. Tropomyosin B. Sarcomere
C. Cytosol's ions D. Troponin

Q.259 Which one is most common in thigh and hip muscles:

A. Muscle fatigue B. Tetany
C. Cramp D. Tetanus

Q.260 The length of myofibril from one Z-band to the next is described as

A. Sarcolemma B. Sarcoplasm
C. Sarcomere D. Muscle fiber

Q.261 Where we find H zone in the figure of fine structure of skeletal muscle's myofibril?

A. In the mid of A band B. In I band
C. Besides the Z-line D. Along the I band

Q.262 The repeated protein pattern of myofibrils is called:

A. Sarcomere B. Telomere
C. Sarcolemma D. Cross bridges

Q.263 Which of the following changes occur during skeletal muscles contraction?

A. I-band shortens only
B. A-band shortens and Z-lines move apart
C. I-band shortens and Z-lines come close to each other
D. Actin filaments contract

Q.264 The sarcolemma of muscle fiber folds inwards and forms a system of tubes which runs through the sarcoplasm called:

A. Myofilaments B. Sarcoplasmic reticulum
C. Z-lines D. Transverse tubules

Q.265 At the start of a muscle contraction, calcium ions are released from:

A. Acting. B. The T tubule.
C. The motor neuron. D. The sarcoplasmic reticulum.

Q.266 The "Insertion" is attached to the:

A. Moveable bone B. Immoveable bone
C. Porous bone D. Compact bone

Q.267 Diameter of a myofibril is

A. 1 – 2 µm B. 10 – 100 µm
C. 7 – 8 µm D. 16 µm

Q.268 Twisting around the actin chains are two strands of another protein:

A. Troponin B. Tropomyosin
C. Myosin D. Collagen

Q.269 There is a regular alteration of light and dark bands called the _____ respectively:

A. I – band and A – band B. A – band and I – band
C. M – line and A – band D. Z – line and I – band

Q.270 Myofibril consists of many threads like structures called:

A. Actin filaments B. Myosin filaments
C. Myofilaments D. Intermediate filaments

Q.271 The special contractile protein actin is found in

A. Thick filaments of A – bands B. Thin filaments of I – bands
C. Both thick and thin bands D. Whole of myofibril

Q.272 Which statement is correct for muscle contraction?

A. Length of H – zone is decreased B. Length of A – band remains constant
C. Length of I – band gets increased D. Length of two Z – line get increased

Q.273 Troponin is a

A. Digestive enzyme
B. Muscle protein
C. High energy reservoir
D. Water soluble vitamin

Q.274 During the muscle contraction which zone disappear

A. I – zone
B. Z – zone
C. H – zone
D. M – zone

Q.275 The light bands (I – bands) of a skeletal muscle are known as

A. Isotropic bands
B. Anisotropic bands
C. Intercalated disc
D. Cross bridges

Q.276 In the resting muscle fibre, tropomyosin partially covers

A. Calcium binding sites on troponin
B. Actin binding sites on myosin
C. Myosin binding sites on actin
D. Calcium binding sites on actin.

Q.277 Cardiac muscle is characterized by

A. Striated appearance
B. Involuntary control
C. Branching pattern
D. All of these

Q.278 The dark bands (A – bands) of a skeletal muscle are known as

A. Isotropic bands
B. Anisotropic bands
C. Intercalated disc
D. Cross bridges

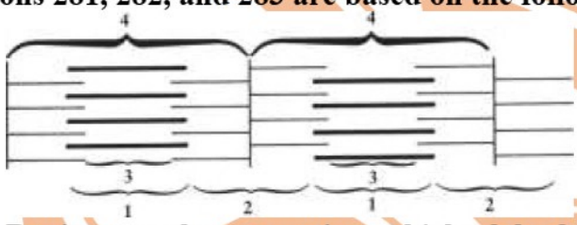
Q.279 During muscle contraction,

A. Chemical energy is changed into electrical energy
B. Chemical energy is changed into mechanical energy
C. Chemical energy is changed into physical energy
D. Mechanical energy is changed into chemical energy

Q.280 The H – zone in the skeletal muscles fibre is due to

A. The absence of myofibrils in the central portion of A – band.
B. The central gap between myosin filaments in the A – band.
C. The central gap between actin
D. Filaments extending through myosin filaments in the A – band.
E. Extension of myosin filaments in the central portion of the A – band.

Questions 281, 282, and 283 are based on the following diagram:



Q.281 During muscle contraction, which of the following regions decrease(s) in length?

A. 1 only
B. 1 and 2 only
C. 3 and 4 only
D. 2, 3, and 4 only

Q.282 Region 1 refers to:

A. The thick filaments only.
B. The thin filaments only.
C. The A-band.
D. The I-band.

Q.283 Which region represents one sarcomere?

A. 1
B. 2
C. 3
D. 4

Q.284 With which of the following molecules does Ca^{2+} bind after its release from the sarcoplasmic reticulum to regulate muscle contraction?

A. Myosin
B. Actin
C. Troponin
D. Tropomyosin

Q.285 Which of the following cells is correctly coupled with its definition?

A. Osteoblasts—bone cells involved in the secretion of bone matrix
B. Osteoclasts—immature bone cells
C. Osteocytes—polynucleated cells actively involved in bone resorption
D. Chondrocytes—undifferentiated bone marrow cells

Q.286 When a muscle is attached to two bones, usually only one of the bones moves. The part of the muscle attached to the stationary bone is referred to as:

A. Proximal
B. Distal
C. Origin
D. Insertion
E. Ventral

Q.287 Which type(s) of muscle is/are always multinucleated?

I. Cardiac muscle **II. Skeletal muscle** **III. Smooth muscle**

A. I only B. II only

C. III only D. I and II only

Q.288 Which type(s) of muscle has/have myogenic activity?

I. Cardiac muscle **II. Skeletal muscle** **III. Smooth muscle**

A. I only B. II only

C. III only D. I and III only

Q.289 Red bone marrow is involved in erythrocyte formation. In contrast, yellow bone marrow:

A. Is involved in leukocyte formation. B. Is responsible for drainage of lymph.

C. Causes the formation of spicules. D. Contains predominantly adipose tissue.

Q.290 Ligaments connect _____ to _____ tendons connect _____ to _____

A. Bone to muscle; bone to bone B. Bone to bone; muscle to bone

C. Muscle to muscle; bone to muscle D. Tendons to muscle; ligaments to bone

E. Tendons to bones; muscle to muscle

Q.291 The wells of arteries consist of

A. Striated muscle and are under voluntary control

B. Striated muscle and are not under voluntary control

C. Smooth muscle and are controlled by the somatic nervous system

D. Smooth muscle and are controlled by the autonomic nervous system

E. A mixture of striated and smooth muscle under control of the autonomic nervous system

Q.292 A movement of muscle that bends a joint to a more acute angle is termed

A. Flexion B. Insertion

C. Tonus D. Diastole E. Extension

Q.293 Which of the following is a true statement?

A. Muscle cell has many muscles fibers B. Muscle cell has many myofibriis

C. Muscle fiber has many muscles tells D. Sarcomere has bundles of muscle fibers

Q.294 Diameter of each myofibril is _____.

A. 2 µm B. 100 µm

C. 10 µm D. 100 µm

Q.295 T-tubules in human skeletal muscles are present at:

A. Z-line B. A-I junction

C. M-line D. H-zone

Q.296 Increase in muscles mass is called:

A. Hypertrophy B. Hypotrophy

C. Atrophy D. Protrophy

Q.297 Which of these is mismatched?

A. Hinge joint-hip B. Slightly moveable joint - vertebrae

C. Synovial joint - elbow D. Immoveable Joint - sutures in cranium

Q.298 Osteoporosis is more common in aged women due to deficiency of _____ hormone.

A. FSH B. LH

C. Estrogen D. Progesterone

Q.299 Which triggers the release of calcium ions from sarcoplasmic reticulum?

A. Formation of actin-myosin cross bridges B. Sarcomere contraction

C. An action potential D. Increase in calcium ion concentration

Q.300 The pigment which stores oxygen in muscle is:

A. Haemoglobin B. Myoglobin

C. Myosin D. Actin

Q.301 Inner part of bone which is porous and soft in nature is called:

A. Compact B. Spongy bone

C. Connecting bones D. Protective bones

Q.302 Which one of the following pair represents unpaired facial bones?

A. Maxilla and mandible B. Maxilla and vomer

C. Mandible and vomer D. Mandible and zygomatic

Q.303 Which one of the following is considered as smallest bone of the human body?

A. Hyoid B. Malleus

C. Stapes D. Incus

Q.304 A motor unit is made up of:

A. All the muscle fibers within a given muscle
B. A motor neuron and the muscle fibers it innervates
C. All the neurons going into an individual section of a body
D. A fascicle and a nerve

Q.305 Which one of the following is correct regarding A-band?

A. It is non-polarizing
B. It is isotropic
C. It contains only myosin
D. Myosin acts as a polarizer of light

Q.306 Man's vestige of a tail is:

A. Sacrum
B. Last lumber vertebrae
C. Coxal bone
D. Coccyx

Q.307 Total number of bones which constitute pectoral girdle of a human being:

A. Two
B. Four
C. Five
D. Three

Q.308 When muscle contracts, thick and thin filaments undergo:

A. Overlapping
B. Shifting
C. Shortening
D. Contraction

Q.309 Osteocytes develop from:

A. Osteogenic stem Cells
B. Osteoclasts
C. Chondrocytes
D. Osteoblasts

Q.310 Contractile protein of skeletal muscle cells involving ATPaSe activity is:

A. Actin
B. Troponin
C. Myosin
D. Tropomyosin

Q.311 All of the following are true regarding muscle contraction except:

A. I band shortens
B. Z-lines gets closer
C. A band remains unchanged
D. M-line disappears

Q.312 Which one of the following type of Joints have no Joint cavity?

A. Synovial
B. Cartilaginous joints joints
C. Fibrous joints
D. Multistage joints

Q.313 Human vertebral formula is:

A. $C_7T_9L_5S_4C_{d1}$
B. $C_7T_{12}L_4S_1C_{d1}$
C. $C_7T_{12}L_5S_5C_{d4}$
D. $C_7T_{12}L_4S_4C_{d1}$

Q.314 The number of ribs that are attached with sternum:

A. 20
B. 24
C. 12
D. 12 pairs

Q.315 Chief component of thin filament is:

A. Actin
B. Myosin
C. Troponin
D. Fibrous proteins

Q.316 Which pair does not possess corresponding bones?

A. Carpals and tarsals
B. Atlas and coccyx
C. Pectoral girdle and pelvic girdle
D. Humerus and femur

Q.317 Phagocytic cells of bone are called

A. Fibroblast
B. Osteoblast
C. Osteoclast
D. Osteocyte

Q.318 Longest bone of lower limb is:

A. Ulna
B. Radius
C. Tibia
D. Femur

Q.319 How many unpaired bones are found in skull?

A. 6
B. 14
C. 8
D. 22

Q.320 Which of the following is an example of synovial joint?

A. Joint between clavicle and scapula
B. Joint between rib and vertebral column
C. Joint between radius and ulna
D. Joints between skull bones

Q.321 For muscle contraction, calcium ions in sarcoplasm are released from:

A. T tubule
B. Sarcoplasmic reticulum
C. Mitochondria
D. Myosin filament

Q.322 Visceral muscles are also called as smooth muscles because they:

A. Don't contain muscle proteins
B. Don't have striations
C. Don't have multiple nuclei
D. Help in peristalsis

Q.323 A statement not true about bones and cartilages:

A. Both contain living cells
B. Both have ground matrix of collagen
C. Both contain various types of living dells
D. Both are part of endoskeleton

Q.324 The disorder in which bones are porous and thin but bone composition is normal is;

A. Osteomalacia
B. Osteoporosis
C. Rickets
D. Arthritis

Q.325 The remodeling of bone is a function of which cells?

A. Chondrocytes and osteocytes
B. Osteoblasts and osteoclasts
C. Chondroblasts and osteoclasts
D. Osteoblasts and Osteocytes

Q.326 Which of the following statements concerning the role of Ca^{+2} in the contraction on skeletal muscle is

A. The mitochondria act as a store of Ca^{++} for the contractile process
B. Ca^{+2} entry across the plasma membrane is important in sustaining the contraction of skeletal muscle
C. A rise in intracellular Ca^{+2} allows actin to interact with myosin
D. The tension of a skeletal muscle/fiber is partly regulated by G proteins/muscle

Q.327 The function of the T tubules in muscle contraction is to

A. Make and store glycogen
B. Release Ca into the cell interior and then pick it up again
C. Make the action potential deep into the muscle cells
D. To hamper the nerve impulse

Q.328 The sites where the motor nerve impulse is transmitted from endings to the skeletal muscle cell membranes are the:

A. Neuromuscular junctions
B. Sarcomeres
C. Myofilaments
D. Z-discs

Q.329 Myoglobin has a special function in muscle tissue

A. It breaks down glycogen
B. It is a contractile protein
C. It holds a reserve supply of oxygen in the muscle
D. None of these

Q.330 Which one of the is correct regarding myoglobin?

l. Redness of muscle is due to myoglobin
II. Stores O_2
III. Stores glycogen

A. I only
B. II only
C. III only
D. I and II
E. l, II, and Ill

Q.331 Smooth muscle does not contain.

l. Actin
II. Myosin
III. Troponin

A. I only
B. II only
C. III only
D. I and II
E. I, II, and

Q.332 Calcium ions goes back to sarcoplasmic reticulum after muscle contraction by

A. Diffusion
B. Facilitated diffusion
C. Active transport
D. Osmosis

Q.333 Which one of the following is not related to muscle cramp?

A. Clostridium tetanl
B. Dehydration
C. Low blood glucose level
D. Lack of ATP
E. Low blood glucose

Q.334 No of sacral vertebra

A. 7
B. 12
C. 5
D. 3
E. 4

Q.335 Which band is anisotropic to polarized light?

A. I band
B. A-band
C. H-zone
D. M-line
E. Z-line

Q.336 Point of attachment of myosin Filament is

A. Z-line
B. H-zone
C. M-line
D. A-band

Q.337 Which area contains only myosin filaments

A. Z-line
B. H-zone
C. M-line
D. A bond

Q.338 Actin filament along with myosin filaments are part of

A. A-Band
B. I-Band
C. H-zone
D. M-line

Q.339 Fusion of vertebral joints are called

A. Slip disc B. Arthritis
C. Spondylosis D. Sciatica

Q.340 Estrogen replacement therapy is treatment for

A. Osteoarthritis B. Gouty arthritis
C. Osteoporosis D. Rickets

Q.341 Pain and inflammation of small joint of fingers are Symptoms of

A. Gouty arthritis B. Osteoarthritis
C. Rheumatoid arthritis D. Rickets

Q.342 Rickets and osteomalacia are due to lock of vitamin D in

A. Adults and children B. Children and children
C. Adults and adults D. Children and adults

Q.343 Calcium phosphate in bone is deposited In

A. lacunae B. Haversian canal
C. Bone matrix D. Osteoblast

Q.344 An Investigational drug prevents skeletal muscle contraction by preventing ATP hydrolysis at the active site in muscle tissue. Where is this drug most likely to act?

A. Intermediate B. Myosin head
C. Actin tail D. Actin head E. Myosin tall

Q.345 Ions are key In mediating muscle contraction. Which of the following Structures interacts directly with ions to expose actin binding sites in contracting muscle?

A. Myofibrils B. Myosin
C. Troponin D. Cross-bridges E. Tropomyosin

Q.346 Which of the following sarcomere portions does not decrease in length during muscular contraction?

A I band
B. All of these portions decrease during contraction
C. H zone
D. None of these portions decrease during contraction
E. A band

Q.347 In excitation-contraction coupling in skeletal muscle, the calcium released from the smooth endoplasmic reticulum binds to which of the following?

A. Myosin B. Actin
C. Tropomyosin D. Calmodulin E. Troponin

Q.348 In a muscle cell, the H-zone has

A. Thin filaments only B. Thick filaments only
C. Z-discs D. Thick and thin filaments overlapping

Q.349 During muscle contraction, which band(s) of the sarcomere shorten(s)?

A. The H-band only B. The I-band only
C. The A-band only, D. The H-band and I-band
E. The A-band and H-band

Q.350 Muscle myofibrils are arranged longitudinally into sarcomeres. Which of the following correctly lists the boundaries of a single sarcomere?

A. Z line to Z line B. M line to H band
C. Z line to H band D. Z line to M line

Q.351 The muscles that are attached to the skeleton are:

A. Smooth muscles B. Skeletal muscles
C. Cardiac muscles D. Involuntary muscles

Q.352 Generally, each end of the entire muscle is attached to bone by a bundle of collagen, non-elastic fibres known as:

A. Ligament B. Capsule
C. Tendon D. Connective tissue

Q.353 It is a long cylindrical cell with multiple oval nuclei arranged just beneath its sarcolemma:

A. Muscle fibre B. Muscle bundle
C. Myofibril D. Myofilament

Q.354 Sarcoplasm of muscle fibres differs from the cytoplasm of the other cells as it contains usually:

A. Large amount of stored starch
B. A unique oxygen binding protein, myoglobin

C. Hemoglobin that stores oxygen
D. Large amount of stored lipids

Q.355 Myofibrils run in parallel fashion and extend entire length of the:
A. Muscle bundle
B. Muscle
C. Muscle fibre or muscle cell
D. Myofilament

Q.356 Bundles of myofibrils are enclosed by the:
A. Muscle cell membrane
B. Nuclear membrane
C. Sarcolemma
D. Muscle cell membrane or sarcolemma

Q.357 The light band of sarcomere is called:
A. H band
B. A band
C. I band
D. M band

Q.358 Light and dark bands of muscles give the muscle cell as a whole its:
A. Strength
B. Nourishment
C. Striped appearance
D. Protection

Q.359 A sarcomere is the region of a myofibril between two successive:
A. A-lines
B. H-lines
C. Z-lines
D. M-lines

Q.360 Myofibrils contain:
A. Myofilaments
B. Thick filaments
C. Thin filaments
D. Muscle fibres

Q.361 It is made up of thick and thin filament:
A. Myofibril
B. Muscle fibre
C. Muscle bundle
D. Myofilament

Q.362 The diameter of thick filament is:
A. 16 nm
B. 7-8 nm
C. 1-2 nm
D. 16 nm

Q.363 Each myosin molecule has a tail terminating in:
A. Two globular heads
B. Two linear heads
C. A globular head
D. A linear head

Q.364 Globular heads of myosin filaments link the thick and the thin myofilaments together during contraction, that is why they are sometimes called:
A. Cross links
B. Cross bridges
C. Cross connection
D. Cross heads

Q.365 Thin filaments have a diameter of:
A. 1-2 nm
B. 10-60 nm
C. 7-8 nm
D. 16 nm

Q.366 Thin filaments are composed chiefly of:
A. Actin
B. Troponin
C. Tropomyosin
D. Actin, tropomyosin and troponin

Q.367 Out of three polypeptides of troponin one binds to actin chain, another binds to tropomyosin while third binds:
A. Myosin
B. Collagen
C. Sodium ions
D. Calcium ions

Q.368 The hypothesis to explain all events involved in muscle contraction was suggested by:
A. H. Huxley
B. H. Huxley and A.F Huxley
C. A.F. Huxley
D. H. Huxley and A.F Huxley and their colleagues

Q.369 During muscle contraction the cross bridges of thick filaments become attached to:
A. Myosin filament
B. Binding sites of myosin filament
C. Binding sites on actin filament
D. Actin filament

Q.370 Calcium ions bind with the troponin molecule and cause them to:
A. Extend
B. Move slightly
C. Contract
D. Remain in the same position

Q.371 Once the myosin head has become attached to the actin filament:
A. ATP is synthesized and the bridge goes to its cycle
B. ATP is hydrolyzed and the bridge goes to its cycle
C. ATP is synthesized and the bridge becomes fixed
D. ATP is hydrolyzed and the bridge becomes fixed

Q.372 All the fibres innervated by a single motor neuron contract:

A. One after other
B. Simultaneously
C. Separately
D. Now or then simultaneously

Q.373 T-system extends and encircles the myofibril at the level of:

A. Z-line
B. A and I junction
C. Z-line or A and I Junctions
D. M-line or A and I Junctions

Q.374 It causes muscle pH to drop when the muscle suffers from:

A. Accumulation of ATPs
B. Aerobic breakdown of glucose
C. Overactive metabolism
D. Lactic acid accumulation

Q.375 It increases the excitability of neurons and result in loss of sensation:

A. Cramp
B. Muscle fatigue
C. Tetany
D. Tetanus

Q.376 The vertebrates possess kinds of muscles:

A. Two
B. Four
C. Three
D. Six

Q.377 It has regular stripes:

A. Cardiac muscles
B. Skeletal muscles
C. Voluntary muscles
D. Involuntary muscles

Q.378 It has many nuclei per cell:

A. Smooth muscles
B. Cardiac muscles
C. Skeletal muscles
D. Involuntary muscles

Q.379 Contraction of smooth muscles is caused by following causes:

A. Spontaneous stimuli
B. Nervous system & hormonal stimuli
C. Stretch stimuli
D. Spontaneous, stretch, nervous & hormones

Q.380 The contraction of cardiac muscles is caused by:

A. Spontaneous stimuli
B. Nervous stimuli
C. Stretch stimuli
D. Hormonal stimuli

Q.381 The function of cardiac muscles is to:

A. To pump blood
B. To move the skeleton
C. To control movement of substances through hollow organs
D. To pump the lymph

Q.382 The function of skeletal muscles is to:

A. To pump blood
B. To move the skeleton
C. To control movement of substances through hollow organs
D. To pump the lymph

Q.383 A smallest contractile unit of muscle contraction called sarcomere is the area between two:

A. H- zone
B. M- Line
C. Z- Line
D. A band

Q.384 The thousands of T-tubules of each muscle cell are collectively called:

A. Triad
B. Sarco-tubules
C. T-system
D. Neuromuscular junction

Q.385 If a cross section of a sarcomere is seen, each myosin is surrounded by how many actin molecules:

A. 9
B. 5
C. 6
D. 7

Q.386 The protein filament which binds to the calcium:

A. Actin
B. Myosin
C. Troponin
D. Tropomyosin

Q.387 Muscle fatigue is caused by:

A. CO_2
B. Accumulation lactic acid
C. Fumaric acid
D. Ethyl alcohol

Q.388 Twisting around the actin chains there are two strands of another protein:

A. Myosin
B. Tropomyosin
C. Troponin
D. Creatine

Q.389 It remains fixed during muscle contraction:

A. Origin
B. Insertion
C. Belly
D. Bone

Q.390 _____can polarize visible light:

A. M-line of sarcomere
B. I-band of sarcomere
C. H-band of sarcomere
D. A-band of sarcomere

Q.391 Its length of myofibril from one Z-line to the next:

A. Plasma membrane
B. Sarcomere
C. Sarcoplasm
D. Sarcolemma

Q.392 Muscle cell is considered as:

A. Muscle fiber
B. Sarcomere
C. Muscle bundle
D. Myofibril

Q.393 Smooth reticulum is similar in structure to:

A. RER
B. Microfilaments
C. Golgi bodies
D. Sarcoplasmic reticulum

Q.394 Pick up the ranges of muscle fibre:

A. 5 – 10 µm
B. 1 – 2 µm
C. 10 – 100 µm
D. 50 – 100 nm

Q.395 The thin filaments extend across the I- band and partly in to:

A. Z-line
B. H-zone
C. A-band
D. M-line

Q.396 The have mid-section called H zone:

A. H-zone
B. M-zone
C. Z-zone
D. A-zone

Q.397 Pick up a complex of three polypeptide chains protein:

A. Tropomyosin
B. Actin
C. Myosin
D. Troponin

Q.398 Each myosin filament is surrounded byactin filaments on both ends:

A. 5
B. 6
C. 10
D. 12

Q.399 After death, the amount in the body falls:

A. Water
B. Calcium
C. Oxygen
D. ATP

Q.400 Majority of muscles tissue in human body are type:

A. Smooth
B. Circular
C. Cardiac
D. Skeletal

Q.401 Which among the following components help(s) to control the myosin-actin interaction involved in muscle contraction?

A. Tropomyosin
B. Troponin
C. Actin
D. Both A and B

Q.402 M line links:

A. Adjacent Z-lines together
B. Adjacent actin filaments together
C. Adjacent myosin filaments together
D. None of these

Q.403 Human skeleton in the beginning is:

A. Made up of cartilage
B. Made up of fibrous membrane
C. Both of these
D. None of these

Q.404 Identify the protein with following features.

I) Beaded
II) Form core of thin filament
III) Intertwined

A. Actin
B. Troponin
C. Tropomyosin
D. Thin filament

Q.405 From Z-lines:

A. Both thick and thin myofilaments extend in both directions
B. Thin myofilaments extend in both directions
C. Thick myofilaments extend in both directions
D. Sarcoplasm extends in both directions

Q.406 Which of the following components are regarded as shock absorbers?

A. Vertebrae
B. Hinge joint at elbow
C. Fixed joints
D. None of these

Q.407 During muscle contractions, which structures are formed and broken several times?

A. Z-lines
B. I-bands
C. Cross-bridges
D. All of these

Q.408 Movement of substances through hollow organs is regulated by:

A. Skeletal muscle
B. Cardiac muscle
C. Smooth muscle
D. Both B and C

Q.409 The type(s) of muscles that do(es) not become fatigue is/are:

A. Skeletal muscle
B. Cardiac muscle
C. Smooth muscle
D. Both B and C

Q.410 Synovial joints are toughened by:

A. Number of bands like tendons
B. Number of bands like ligaments
C. Number of bands like blood vessels
D. A and B

Q.411 Two, long parallel bones are:

A. Phalanges of toe
B. Tarsal and metatarsal
C. Humerus and femur
D. Tibia and fibula

Q.412 Which component blocks myosin binding sites on actin molecules, preventing cross-bridge formation and preventing contraction in a muscle without nervous input?

A. Tropomyosin
B. Actin
C. G protein
D. Troponin

Q.413 What is/are the function(s) of joints?

A. To give mobility
B. To hold the skeleton
C. Both of these
D. None of these

Q.414 The protein(s) component(s) of thin filament is/are:

I. Tropomyosin
II. Actin
III. Troponin

A. I, II and III
B. I only
C. II only
D. III only

Q.415 The sarcolemma goes through deep into the cell to form tube known as:

A. Myofibril
B. T tubule
C. G protein
D. Sarcomere

Q.416 Ribs:

A. Help to protect heart
B. Help to protect lungs
C. Both of these
D. None of these

Q.417 The midline of I band is known as:

A. H-zone
B. M-line
C. Z-line
D. None of these

Q.418 Muscle is divided into discrete bundles of muscle cells known as:

A. Myofibril
B. Muscle fibre
C. Muscle fascicle
D. Myofilament

Q.419 During the mechanism of muscle contraction, power stroke occurs. Which event(s) is/are not related to power stroke?

I) ATP attaches with myosin
II) Sarcomere contracts
III) ADP and Pi dissociate from actin

A. III only
B. II only
C. I only
D. I and III

Q.420 The type of joint found in ankle is:

A. Ball and socket joint
B. Sliding joint
C. Gliding joint
D. Hinge joint

Q.421 Axial skeleton consists of which of the following components?

I) Vertebrae II) Ribs III) Skull

A. I, II and III
B. I only
C. III only
D. II only

Q.422 Cartilage is made up of:

A. Chondrocytes
B. Osteocytes
C. Calcium phosphates
D. All of these

Q.423 The coccyx is:

A. Man's vestige of a ribs
B. Man's vestige of a tail
C. Man's vestige of a head
D. Man's vestige of a chest

Q.424 Human skeleton may suffer from some deformities, like:

A. Congenital
B. Hormonal deficiency
C. Malnutrition
D. All of these

Q.425 Calcium ions bind to:

A. Actin
B. Tropomyosin
C. Bulbous heads of thick filament
D. Troponin

Q.426 Find the odd one out regarding the pelvic bone.

I) Pubis II) Ileum III) Ischium

A. II only
B. I, II and III are related to pelvic bone
C. I only
D. III only

Q.427 Muscle fibre is covered by:

A. Endomycium
B. Perimycium
C. Peritoneum
D. Epimycium

Q.428 The sliding filament theory of contraction states that during contraction:

A. M-line slides past the thin and thick filament
B. Thin myofilaments slide past the thick ones
C. Z-line slides over A band
D. None of these

Q.429 When muscle fibres are stimulated by nervous system:

A. The myosin heads are attached on to actin binding sites on myosin.
B. The myosin heads are attached on to myosin binding sites on actin.
C. The actin heads are attached on to myosin binding sites on actin.
D. None of these

Q.430 During muscle contraction, nerve impulse is carried through the sarcolemma to:

A. SR and then to T tubule
B. T tubule and then to SR
C. Mitochondria and then to T tubule
D. None of these

Q.431 In sarcomere, H-zone is bisected by:

A. Dark band, A band
B. Light band, I band
C. Light line, M line
D. Dark line, M line

Q.432 In relaxed muscle fibre, thick and thin myofilaments overlap at the:

A. Ends of A band
B. Centre of I band
C. Centre of A band
D. Ends of I band

Q.433 What is the number of bones in adult human?

A. 206 bones
B. 300 bones
C. 210 bones
D. 260 bones

Q.434 In medical terminology, the fractured bone is also called as:

A. Immature bone
B. Broken bone
C. Normal bone
D. Narrow bone

Q.435 Find the correct statement(s) about bone formation.

I. Human bones are composed of chondrocytes.
II. Human bones are composed of muscle cells.
III. Human bones are composed of osteocytes.

A. I only
B. II only
C. III only
D. I, II and III

Q.436 What is the number of bones in human cranium?

A. 29
B. 33
C. 22
D. 08

Q.437 Shoulder and hip joints represent which type of joint?

A. Hinge joint
B. Ball and socket joint
C. Pivot joint
D. Both A and B

Q.438 Sciatica is caused by:

A. Disc slip
B. Trauma to sciatic nerve
C. Pelvic injury
D. All of these

Q.439 The condition of swollen, painful and immoveable joints is:

A. Disc slip
B. Herniated disk
C. Arthritis
D. Osteoporosis

Q.440 The function of muscle is:

A. To convert chemical energy to electrical energy
B. To convert chemical energy to mechanical energy
C. To convert chemical energy to muscular energy
D. None of these

Q.441 What is true about skeletal muscles?
I. Skeletal muscles are attached to and cover bony skeleton.
II. Skeletal muscles are attached to and cover internal organs.
III. Skeletal muscles are attached to and cover heart and lungs.
A. I only
B. II only
C. III only
D. I, II and III

Q.442 Find the type of muscle(s) that is/are involuntary in nature.
A. Skeletal muscles
B. Cardiac muscles
C. Smooth muscles
D. Cardiac and smooth muscles

Q.443 The neurotransmitter involved in muscle contraction is:
A. Calcium ion
B. ATP
C. Acetylcholine
D. All of these

Q.444 Skeletal muscles consist of muscle bundle which are further:
A. Composed of microfiber
B. Composed of sarcoplasm
C. Composed of muscles fibre
D. None of these

Q.445 Sarcoplasmic reticulum is a modified form of endoplasmic reticulum which:
A. Stores sodium
B. Stores magnesium
C. Stores calcium
D. None of these

Q.446 The light band is generally known as I-band and is:
A. Anisotropic
B. Isotropic
C. Both of these
D. None of these

Q.447 In sarcomere, what is located in the centre of A band having lighter band?
A. H-zone
B. M-line
C. Z-line
D. None of these

Q.448 A sarcomere is the region of a myofibril between:
A. Two successive H-zones
B. Two successive M-lines
C. Two successive Z-lines
D. None of these

Q.449 What is the functional unit of muscle contraction?
A. Muscle fibre
B. Myofibre
C. Sarcomere
D. Muscle fascicle

Q.450 The thick filament is composed of:
A. Tropomyosin protein
B. Actin protein
C. Troponin protein
D. Myosin protein

Q.451 Less supply of minerals and dehydration cause:
A. Muscle push
B. Muscle fatigue
C. Muscle cramp
D. All of these

Q.452 In muscle fatigue condition, the cross bridges are not able to detach due to:
A. Unavailability of lactic acid
B. Unavailability of ADP
C. Unavailability of ATP
D. Unavailability of glucose

Q.453 A common cause of tetany is:
A. Low level of potassium in body
B. Low level of calcium in body
C. Low level of magnesium in body
D. None of these

Q.454 Excessive intracellular accumulation of lactic acid in muscle causes:
A. Tetany
B. Cramp
C. Muscle pull
D. Muscle fatigue

Q.455 Clavicle links:
A. Ribs with sternum
B. Scapula with humerus
C. Scapula with sternum
D. Humerus with sternum

Q.456 When muscle contracts:
A. Thick and thin filaments undergo lengthening
B. Thick and thin filaments undergo shortening
C. Thick and thin filaments undergo sliding
D. None of these

Q.457 Knee-cap is a general name of which bone?
A. Metatarsal
B. Fibula
C. Tibia
D. Patella

Q.458 The structure that serves as a center of sarcomere is:
A. H-zone
B. Z-band
C. M-line
D. A-band

Q.459 All of the following are parts of axial skeleton except:

A. Sternum
B. Skull
C. Shoulder blade
D. Spine

Q.460 A motor unit is consisted of:

A. A motor neuron and the muscle fibres it innervates
B. All the muscle fibres within a given muscle
C. A fascicle and nerve
D. None of these

Q.461 Human wrist and palm contain which of the following set of bones respectively?

A. Metacarpals and carpals
B. Tarsals and metacarpals
C. Carpals and metacarpals
D. Metatarsals and tarsals

Q.462 Muscular disorder that is due to low sugar level and electrolytes imbalance is:

A. Cramps
B. Tetany
C. Muscle tetany
D. Muscle fatigue

Q.463 What is needed for stripped muscles to contract?

I. Release of calcium ions from troponin
II. Binding of calcium ions to tropomyosin
III. Binding of calcium ions to troponin

A. I only
B. II only
C. III only
D. I, II and III

Q.464 During mechanism of muscle contraction, cross bridges are formed:

A. Between troponin and tropomyosin
B. Between sarcolemma and sarcoplasmic reticulum
C. Between calcium and sodium
D. Between actin filaments and myosin heads

Q.465 During mechanism of muscle contraction, the release of calcium ions from sarcoplasmic reticulum is triggered by:

A. Sarcomere contraction
B. Action potential
C. Formation of actin-myosin cross bridges
D. None of these

Q.466 Brain-box is made up of:

A. Four bones to protect the brain
B. Seven bones to protect the brain
C. Six bones to protect the brain
D. Eight bones to protect the brain

Q.467 Osteoporosis is more common in elderly women due to:

A. Deficiency of FSH
B. Deficiency of oestrogen
C. Deficiency of progesterone
D. Deficiency of LH

Q.468 In humans, the main internal organs are protected by:

A. Hydrostatic skeleton
B. Axial skeleton
C. Exoskeleton
D. Appendicular skeleton

Q.469 The main functional partners of bones is:

A. Tendon
B. Ligament
C. Skeletal muscle
D. None of these

Q.470 The point of attachment of the nerve to the muscle is known as:

A. Chemical junction
B. Mechanical junction
C. Neuro-muscular junction
D. Synaptic junction

Q.471 Ischium is the part of:

A. Pectoral girdle
B. Rib cage
C. Vertebral column
D. Pelvic girdle

Q.472 The major component of thin filaments is:

A. Actin
B. Troponin
C. Myosin
D. Bulbous head

Q.473 ATP required for muscle contraction are supplied by:

A. Phosphorus
B. Creatinine
C. Creatine phosphate
D. Myoglobin

Q.474 A protein that is complex of three polypeptide chains is:

A. Actin
B. Tropomyosin
C. Myosin
D. Troponin

Q.475 What is true option about human vertebral formula?
(C=cervical, T=thoracic, L=lumbar, S=sacral, C=coccyx)

A. $C_7T_9L_5\ S_4\ C_1$
B. $C_7\ T_{12}\ L_4\ S_4\ C_1$
C. $C_7\ T_{12}\ L_4\ S_1\ C_1$
D. $C_7\ T_{12}\ L_5\ S_5\ C_4$

Q.476 The number of bones present in our arms is:

A. 30 B. 60
C. 25 D. 45

Q.477 The point of attachment for a muscle is known as:

A. Belly B. Origin
C. Insertion D. Tendon

Q.478 The joint cavity is observed in:

A. Between cranial bones B. Between vertebrae
C. Both of these D. None of these

Q.479 Synovial fluid helps in:

A. Protection of articular cartilage B. Lubrication
C. Both of these D. None of these

Q.480 The characteristic not observed in skeletal and smooth muscle cells but observed in cardiac muscle cells is:

A. Troponin B. Calcium ions
C. Intercalated discs D. None of these

Q.481 Find the incorrect statement about mechanism of muscle contraction.

I. When Ca^{++} binds to a myosin head, it stimulates the formation of a cross-bridge between myosin and actin.

II. Myosin cross-bridges remain in place until the myosin head binds an ATP.

A. I only B. II only
C. Both are incorrect D. Both are correct

Q.482 Muscles would remain in their contracted state, rather than their relaxed state:

A. Without ATP B. With ATP
C. Both of these D. None of these

Q.483 The disc in the middle of the sarcomere, inside the H-zone is:

A. I-band B. A-band
C. M-line D. Z-line

Q.484 When myosin expends ATP, it moves through:

A. Recovery stroke B. Power stroke
C. Fatigue D. Either A or B

Q.485 The region where actin myofilaments are not overlapped by myosin myofilaments is:

A. A-band B. I-band
C. Both of these D. None of these

Q.486 What is necessary for the myosin to rebind to actin at the next muscle contraction?

A. ATP must bind to actin to break the cross- bridge
B. ATP must bind to myosin to break the cross-bridge
C. Ca^{++} must bind to myosin to break the cross-bridge
D. Either A or B

Q.487 Each muscle cell may contain:

A. Many thousands of myofilaments B. Many thousands of myofibrils
C. Many thousands of muscle fascicle D. None of these

Q.488 When myosin becomes ready to bind to actin if the sites are available; it occurs:

A. When energy is formed by ADP + Pi
B. When energy is formed by ADP Pi
C. When energy is released during ATP hydrolysis
D. Either A or B
E. None of these

Q.489 The region between two neighboring, parallel I-bands is known as:

A. A-band B. Light band
C. M-line D. None of these

Q.490 ATP is necessary for muscle contractions:

A. Because it breaks the myosin-actin cross- bridge
B. Because it forms the myosin-actin cross- bridge
C. Either A or B
D. None of these

Q.491 The muscle contraction cycle is triggered by calcium ions binding to:

A. Tropomyosin B. Troponin
C. Actin D. Myosin

Q.492 For the release of calcium ions from the sarcoplasmic reticulum:

A. Action potential must travel along actin
B. Action potential must travel along myosin
C. Action potential must travel along T-tubules
D. None of these

Q.493 A sarcomere is the unit of:

A. Endomycium
B. Myofilament
C. Myofibril
D. None of these

Q.494 When muscle fibre shortens:

A. Z-line also shortens
B. Actin filament also shortens
C. Sarcomere also shortens
D. A, B and C also shorten

Q.495 The movement of a limb (e.g. arm) towards the midline of the body is known as:

A. Flexion
B. Extension
C. Adduction
D. Abduction

Q.496 The area where the thick and the thin filaments overlap is called as:

A. Sarcomere
B. Myofibril
C. A-band
D. I-band

Q.497 Which one of the following features properly describes the smooth muscles?

I. Unstriated, Involuntary, Spindle-shaped cells
II. Unstriated, Involuntary, Multinucleated cells
III. Striated, Involuntary, Spindle-shaped cell

A. I only
B. II only
C. III only
D. I and II

Q.498 Which of the following bones in the human arm would correspond to the femur in the leg?

A. Tibia
B. Ulna
C. Humerus
D. Radius

Q.499 During muscle contraction, myosin cross bridges:

A. Attach to active sites of myosin filaments
B. Attach to active sites of the H zone
C. Attach to active sites of actin filaments
D. Attach to active sites of Z lines

Q.500 Body's oxygen debt (after heavy exercise) is repaid by:

A. Overlapping
B. Eating
C. Breathing
D. All of these

Q.501 The connective tissue that surrounds muscle cell:

A. Endomycium
B. Perimycium
C. Epimycium
D. Sarcolemma

Q.502 In spondylosis, severe pain is not observed in:

A. Shoulders
B. Neck
C. Lower limb
D. Severe pain is observed in A, B and C

Q.503 Which type(s) of joint(s) are found in elbow?

A. Hinge joint
B. Pivot joint
C. Sliding joint
D. Hinge joint and pivot joint

Q.504 What is required for tired muscle to work again?

A. CO_2
B. Glucose
C. H_2O
D. O_2

Q.505 Which one is the most primitive form of muscle?

A) cardiac muscle
B) Skeletal muscle
C) Smooth muscle
D) Cardiac & Smooth

Q.506 The collection of sarcoplasmic reticulum and tubule Is called as:

A) Triad
B) Trimuscular body
C) Tetracular
D) All of these

Q.507 How are muscles attached to bones?

A) Cartilage
B) Tendon
C) Ligament
D) Osteocytes

Q.508 Which two muscles are in your upper arm?

A) Biceps and triceps
B) Hamstrings and quadriceps
C) Biceps and hamstrings
D) Biceps and thigh

Q.509 Which muscle is adapted to be highly resistant to fatigue?

A) Cardiac
B) Striped
C) Unstriped
D) Voluntary

Q.510 Thick filaments in skeletal muscle are composed of

A) Actin B) Myosin

C) Troponin D) Tropomyosin

Q.511 Which of the following statements regarding the shortening of a skeletal-muscle fiber is not true? When a skeletal-muscle fiber shortens the:

A) Sarcomeres shorten B) myofilaments shorten

C) The distance between Z lines decreases D) The myofilament slide past each other

Q.512 In skeletal muscle, calcium facilitates contraction by binding to_____

A) Tropomyosin B) Actin

C) Troponin D) Myosin

Q.513 Rigor mortis occurs in a dead animal because:

A) ATP, which is necessary for the detachment of cross bridges, is not being formed

B) ATP, which is necessary for the formation of cross bridges, is not being formed

C) ATP, which is necessary for the formation of cross bridges, continues to be formed for several hours after death

D) Deterioration of muscle proteins prevents detachment of cross bridges

Q.514 An action potential in the motor end plate rapidly spreads to the central productions of a muscle cell by means of the _____

A) Z lines B) Sarcoplasmic reticulum

C) H zone D) Transverse tubules

Q.515 How many types of protein is present in the thin filament?

A) 1 B) 2

C) 3 D) 4

Q.516 What may be the alternative name for man if the below diagram is a sarcomere?

A) Actin B) Myosin

C) ATP D) Calcium

Q.517 The term "Motor unit" refers to:

A) A single motor neuron plus all the muscle fibres il innervates

B) A single muscle fibre plus all of the motor neurons that innervate it

C) All Of the motor neurons supplying a single muscle

D) A pair of antagonistic muscles

Q.518 The functions of tropomyosin in skeletal muscle include:

A) Sliding on actin to produce shortening

B) Releasing Ca^{2+} after initiation of contraction

C) Binding to myosin during contraction

D) Acting as a "relaxing protein" at rest by covering up the sites were myosin binds to actin

Q.519 Which of the following statements about the structure of skeletal muscle is not correct?

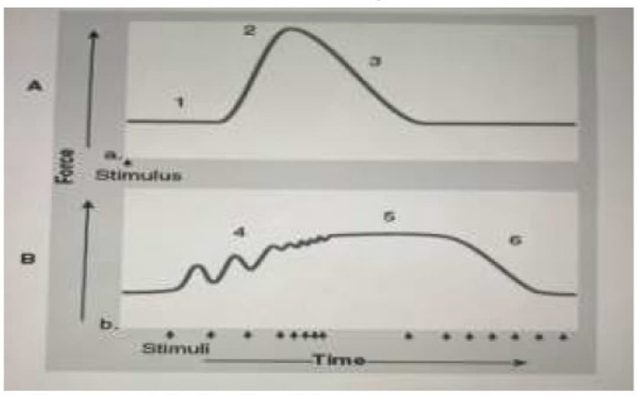
A) Myofibers of skeletal muscle cells contain numerous myofibrils that are divided into sarcomeres

B) The arrangement of thick myosin and thin actin filaments give the sarcomeres of skeletal muscle a striated appearance under the microscope

C) In skeletal muscle Z discs of proteins at each end of the sarcomeres have the actin filaments attached to them

D) The arrangement of thin myosin and thick actin filaments give the sarcomeres of skeletal muscle a striated appearance under the microscope

Q.520 The graphs given below illustrate the activity of two muscles. Select the correct option



A) Muscle A is more active than B
B) Muscle B is more energetic than A
C) Muscle A showed the excessive activity than B
D) Muscle B showed the excessive activity than A.

Q.521 Which of the following statements about the contraction of skeletal muscle is correct?

A) The power stroke of skeletal muscle contraction occurs when the myosin head hydrolyses ATP
B) The power stroke of skeletal muscle contraction occurs when the myosin head binds ATP
C) The power stroke of skeletal muscle contraction occurs when the myosin head releases ATP
D) The power stroke of skeletal muscle contraction occurs when the myosin head releases ADP and Pi

Q.522 Which of the following statements about the role of calcium (Ca^{2+}) during skeletal muscle contraction is correct?

A) Ca^{2+} released into a myofibril by the action or a nerve impulse binds to a site on the myosin head to initiate contraction
B) Ca^{2+} released into a myofibril by the action of a nerve impulse binds to a site on tropomyosin to initiate contraction
C) Ca^{2+} released into a myofibril by the action of a nerve impulse binds to a site on the actin to initiate contraction
D) Ca^{2+} released into a myofibril by the action o! a nerve impulse binds to a site on troponin to initiate Contraction

Q.523 The muscle bundle is covered by

A) Epimysium B) Endomysium
C) Perimysium D) Mesomysium

Q.524 The energy of muscle contraction is derived from the following except:

A) ATP B) Muscle glycogen
C) Creatine phosphate D) All of these

Q.525 Cardiac Muscles are present in which of following wall of heart.

A) Epicardium B) Myocardium
C) Endocardium D) All of these.

Q.526 All about the Sarcomere are true except:

A) Is the distance between myosin and actin
B) Is the contractile unite of the muscle
C) Is the distance between two Z membranes
D) Shorten when the muscle contracts

Q.527 Which of the following is not associated with nutritional deficiency or lethargy?

A) Muscle fatigue B) Muscle cramps
C) Tetany D Tetanus

Q.528 Which muscles are Maximum in human body?

A) Skeletal B) Cardiac
C) smooth D) All are present in almost equal number.

Q.529 Bones and cartilage consist of living cells embedded in the matrix of protein:

A) Collagen B) Insulin
C) Keratin D) Fibrinogen

Q.530 Bone to bone attachment is by:

A) Tendon B) Nerves
C) Muscles D) Ligament

Q.531 Sacrum is formed by the fusion of anterior vertebrae of Pelvic region:

A) Two bones B) Three bones
C) Four bones D) Five bones

Q.532 An inflammatory or degenerative disease that damages the joint is:

A) Hepatitis. B) Arthritis
C) Anthrax D) Meningitis

Q.533 Pick up wrist bones from following.

A. tarsals. B metatarsal
C carpal D metacarpals

Q.534 Ulm and radius form..... joint at their Distal end with carpals.

A ball and socket | B Hinge
C multistage | D pivot

Q.535 How many bones in appendicular skeleton are there.

A. 80 | B 126
C 206 | D 300

Q.536 facial bones contain _____ paired and _____ unpaired bones respectively.

A. 2, 6 | B. 2, 4
C. 4, 2 | D. 6, 2

Q.537 Stiffness of body after death is .

A post martum | B Biopsy
C rigor mortis | D All of these

Q.538 The joint which allows movement in several direction is

A Hinge | B ball and socket
C saddle | D pivot

Q.539 The joint between radius and ulna are.

A multistage | B pivot
C yes | D sutures.

Q.540 Pick up the muscle of tongue from following.

A. Skeletal | B Smooth
C Cardiac | D A & B

Q.541 The smallest contractile unit of muscle fiber is

A dark band | B sarcomere
C sarcoplasmic reticulum | D myofibril

Q.542 Skeletal Muscle cell looks non striated when viewed Under

A ultra-power | B Low power
C High power | D electron microscope

Q.543 Myofibril contains

A. myofilaments | B thick filament
C thin filament | D muscle fiber

Q.544 The diameter of thin filament is

A 16 um | B. 8 um
C 1- 2 um | D 10-10100um

Q.545 Secondary Source of muscle contraction is

A ATP | B creatinine phosphate.
C calcium | D All of these.

Q.546 H Zone is a part of

A dark band | B. light band
C sarcomere | D Z line

Q.547 Which of following ion is responsible for muscle contraction?

A Ca | B. Fe
C Mg | D. Na

Q.548 Muscle contraction is based on

A All and all principal | B None and None principal
C All and None principal | D it Don't depend on any principal

Q.549 Which of following have many nuclei per cell

A smooth muscle | B Skeletal Muscle
C Cardiac muscle | D All are multinucleate

Q.550 The muscles of urinary Bladder and blood vessel are

A smooth | B Cardiac
C Skeletal | D All of these

Q.551 Pick up a 3-polypeptide protein from following.

A. actin | B. myosin
C. Tropomyosin | D. troponin

Q.552 During muscle contraction bond will be form between.

A. Actin and myosin | B. myosin and troponin
C. actin myosin and troponin | D. actin and Tropomyosin

Q.553 T system extends and encircle the myofibril at the level of:

A. A band | B Z line
C. Z line and I junction | D M line and I junction

Q.554 The contraction of Cardiac muscles is caused by:

A spontaneous B Nervous and Hormonal
C Stretch D All of these.

Q.555 Total muscles in our body are

A 206 B 605
C 650 D 300

Q.556 Where does head of femur articulate.

A Glenoid cavity B Acetabulum.
C Foramen D shoulder bone

Q.557 Ribs cage consist of total bones

A 12 B 24
C 25 D 28

Q.558 The respiratory protein in muscle is

A Hemoglobin B Myoglobin
C Troponin D All of these

Q.559 Pick up Palm bones from following

A tarsal B metatarsal
C. metacarpals D phalanges

Q.560 Pick up longest bone of the body

A Humerus B Ulna
C femur D vertebral column

Q.561 Each myosin molecule has a tail terminating in.

A. Two globular heads B. Two tails
C. linear head D flat head

Q.562 Wrist bones in man are

A 8 B 16 C 56 D 28

Q.563 When more energy is required to contract then it is provided by

A. ATP B Phosphocreatine C lactic acid D A and B

Q.564 The antagonistic muscles are represented by:

A. Ligaments B. Tendons
C. Biceps and triceps D. Ribs

Q.565 In the below diagram of human joint and find the right row of answers accordingly.

Option	Type of joint	Observed between
A.	Ball and socket	Sternum and Neck
B.	Ball and socket	Spine and Skull
C.	Pivot joint	Spine and Rib
D.	Pivot joint	Spine and Skull

Q.566 Which one of the following functions is related with human endoskeleton?

A. Store glycogen B. Produce blood cells
C. Store nitrogenous wastes D. Produce lactic acid

Q.567 Another name for thigh bone is:

A. Humerus B. Femur
C. Clavicle D. Pelvis

Q.568 In the below diagram, 'F' represents:

A. Extension
B. Flexion
C. Protraction
D. Retraction

Q.569 The original number of bones in vertebral column is:

A. 24
B. 26
C. 33
D. 36

Q.570 Find the right row of answers about bones accordingly.

Option	Leg	Arm
A.	Femur	Tarsals
B.	Patella	Metacarpals
C.	Humerus	Carpals
D.	Fibula	Femur

Q.571 Muscles become fatigue due to accumulation of:

A. CO_2
B. Pyruvic acid
C. ATP
D. Lactic acid

Q.572 Which muscles push the food through the digestive tract?

A. Smooth muscles
B. Cardiac muscles
C. Skeletal muscles
D. Cardiac and smooth muscles

Q.573 The rib-cage protects:

A. Brain
B. Heart
C. Lungs
D. B & C

Q.574 The vertical lines in sarcomere are called:

A. Z-lines
B. A-band
C. I-band
D. H-zone

Q.575 In the below diagram, labeled parts V & W represent which bones?

Option	V	W
A.	Fibula	Tibia
B.	Tibia	Fibula
C.	Radius	Ulna
D.	Ulna	Radius

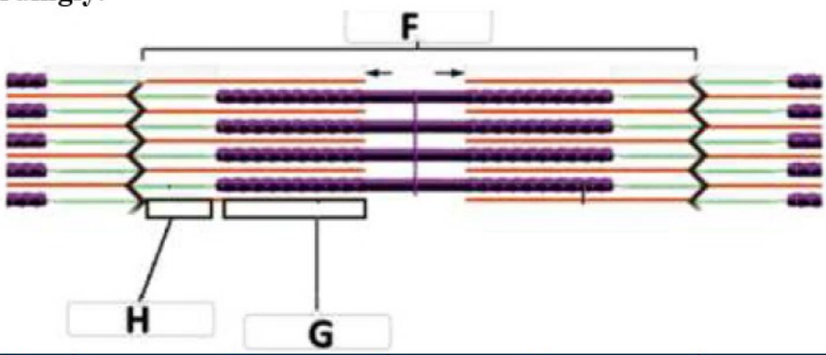
Q.576 Calcium ions are stored in:

A. Sarcolemma
B. Sarcomere
C. Myosin
D. Sarcoplasmic reticulum

Q.577 In a typical joint, the two bones are held together by:

A. Ligament
B. Tendon
C. Cartilage
D. Hairs

Q.578 Observe the below diagram of muscle fibre and find the right row of answers accordingly.



Option	F	G	H
A.	Sarcolemma	A band	I band
B.	Sarcoplasm	I band	A Band
C.	Sarcomere	I band	A Band
D.	Sarcomere	A band	I Band

Q.579 Each pectoral girdle consists of:

A. Shoulder & hip girdles
B. Clavicle & sternum
C. Clavicle & innominate
D. Scapula & clavicle

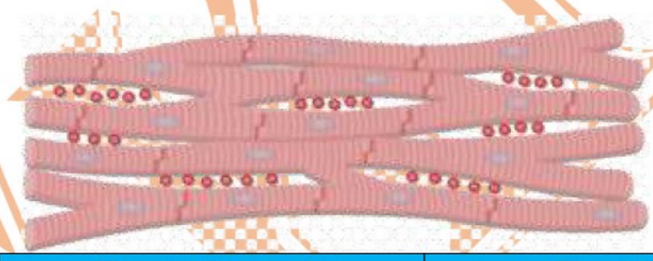
Q.580 Fused joint is found in:

A. Elbow
B. Knee
C. Skull
D. Hip

Q.581 What is not correct about arthritis?

A. Joint becomes swollen
B. Joint becomes painful
C. Joint becomes moveable
D. A, B and C are correct

Q.582 Identify the below diagram of cell organelles.



Option	Type of muscle	Found in
A.	Smooth	Intestine and stomach
B.	Cardiac	Heart wall
C.	Skeletal	Heart wall
D.	Cardiac	Intestine and stomach

Q.583 Find the correct row regarding bones and type of joint.

Option	Bones	Type of joint
A.	Carpals	Sliding joint
B.	Cranial bones	Partially moveable joints
C.	Clavicle and humerus	Hinge joint
D.	Ribs	Fixed joints

Q.584 Oxygen supplied to tired muscles breaks lactic acid into:

A. ATPs
B. CO_2 & H_2O
C. CO_2 & ATPs
D. H_2O & ATPs

Q.585 The bones of wrist are also called as:

A. Carpals
B. Metacarpals
C. Tarsals
D. Metatarsals

Q.586 In a leg, what is the correct number of bones in sole, toes and ankle respectively?

A. 5, 14, 8
B. 8, 14, 7
C. 5, 14, 7
D. 14, 28, 10

Q.587 Ribs are attached on their dorsal surface with _____ and on their ventral side with

A. Sternum; vertebrae
B. Arms; legs
C. Vertebrae; sternum
D. Pelvis; clavicle

Q.588 Which one of the following features is not related with cardiac muscles?

A. They are striated muscles. B. They are branched muscles.
C. They beat in a rhythmic pattern. D. They are voluntary in nature.

Q.589 What is the true set of bones of innominate bone?

A. Ileum, Ischium, Pubis B. Clavicle, Pubis, Patella
C. Ischium, Ilium, Pubis D. Pubis, Coccyx, Sacrum

Q.590 Five words are Shown below regarding structure of skeletal muscle.
Striated muscle Myofibril Sarcolemma Muscle fibres Sarcomeres
These words can be used in spaces G. H. l. J and K to complete the sentence below. Each skeletal muscle is actually a bundle of long and parallel closely packed thread like multinucleated, cells called __G__Each fibre is covered by plasma membrane. the _H_Each of these cylindrical fibres is itself composed of many individuals. ultramicroscopic. Contractile _l_ These fibrils are made u of linear series of _J ._ which are the actual units of _K_ that contract.

Option	Muscle fiber	Sarcomeres	Myofibrils	Straited muscle	Sarcolemma
A.	G	H	J	K	I
B.	G	H	K	J	I
C.	G	J	I	K	H
D.	G	I	J	K	H
E.	H	I	K	J	G

Q.591 With which state of a living muscle, are the following events associated?
1. Ca^{2+} released by sarcoplasmic reticulum 2. Actin complexes with myosin
3. ATPase is activated 4. Troponin binds Ca^{+2}

A. Relaxed state B. Muscle at the beginning of contraction
C. Muscle in tetanus D. Muscle at the end of contraction

Q.592 Which of the following function of skeletal system is accomplished with the help of skeletal muscles?

A. Blood cell production B. Mineral homeostasis
C. Movement D. Protection

Q.593 The functional unit of skeletal muscles is actually a region of:

A. Myofibrils B. Myofilaments
C. A-band D. I-band

Q.594 Where can we find H-zone in the figure of fine structure for skeletal muscle's myofibril?

A. In the mid of A-band B. In I-band
C. Besides the Z-line D. Along the I-band

Q.595 Each A band has a lighter strip in its mid-section called:

A. I band B. Z band
C. H-zone D. M line

Q.596 Thick and thin filaments in skeletal muscle are linked together through:

A. Cross bridges B. Ca^{+2} ions
C. Troponin D. Tropomyosin

Q.597 During muscle contraction, ATP molecules bind with:

A. Actin B. Myosin
C. Troponin D. Tropomyosin

Q.598 Sarcolemma is primarily made up of:

A. Lipoprotein B. Glycoprotein
C. Glycolipids D. Nucleoproteins

Q.599 I-band in skeletal muscle contains:

A. Thick filaments only B. Thin filaments only
C. Mainly thick and partly thin D. Mainly thin and partly thick

Q.600 During muscle contraction, H-zone disappears due to increase in:

A. Muscle length B. Length of myosin
C. Overlapping of actin and myosin D. Lengthening of sarcomere

Q.601 During muscle contraction, calcium ions are transferred from SR to cytosol through:

A. Na-gates B. Ca-gates
C. Na-K pump D. Ca-pump

Q.602 Which of these is not a major functional characteristic of muscle?

A. Elasticity B. Contractibility
C. Excitability D. Secretability

Q.603 Structural and functional unit of contractile apparatus in striated muscle is called:

A. Sarcomere B. Z-band
C. Cross bridge D. Myofibril

Q.604 Which of the following proteins is found in the thick filaments of skeletal muscles?

A. Myosin B. Actin
C. Troponin D. Tropomyosin

Q.605 Myosin myofilaments are:

A. Attached to the Z-disk B. Absent from the H-zone
C. Found primarily in the I-band D. Attached to filaments that form M-line

Q.606 Which of the following is the contractile protein of a muscle?

A. Myosin B. Troponin
C. α-Actinin D. All A, B, C

Q.607 During contraction of skeletal muscle Ca^{2+} bind to:

A. Actin B. Troponin
C. Tropomyosin D. Myosin ATPase

Q.608 If a muscle undergoes a rapid contraction and relaxation, the sarcoplasmic reticulum extension:

A. Requires constant plugging in and out of Ca^{2+} B. Rapid synthesis of myosin
C. Do not require energy D. Requires to produce ATP

Q.609 Rigidity that develops in the muscle after death is known as:

A. Twitch B. Tetany
C. Tetanus D. Rigor mortis

Q.610 Red muscle fibres are rich in which organelle?

A. Protein B. Lysosomes
C. Microsomes D. Mitochondria

Q.611 'All or none law' is associated with:

A. Neurons B. Muscle fibre
C. Cardiac muscle D. Uriniferous tubules

Q.612 The most abundant mineral element in the muscle is:

A. Sodium B. Calcium
C. Potassium D. Magnesium

Q.613 How many haem group/s is/are found in a single molecule of myoglobin?

A. One B. Three
C. Four D. Many

Q.614 Long bones of mammals provide:

A. Support only B. Support and produce RBCs only
C. Support and produce WBCs only D. Support and produce RBCs and WBCs

Q.615 Ends of long bones are covered by:

A. Tendons B. Cartilage
C. Ligaments D. Blood cells

Q.616 Bone dissolving cells are:

A. Osteoblasts B. Osteoclasts
C. Chondroclasts D. Chondroblasts

Q.617 Fibrous immovable joints are found in the:

A. Bones of skull B. Bones of limbs
C. Bones of girdles D. Bones of vertebral column

Q.618 Which of the following is a cartilaginous joint?

A. Suture B. Elbow joint
C. Synovial joint D. Pubic symphysis

Q.619 Symphysis consists of:

A. Fibrocartilage B. Synovial fluid
C. Elastic cartilage D. Hyaline cartilage

Q.620 Which of the following holds the articular bones together?

A. Ligaments B. Tendons
C. Both of these D. None of these

Q.621 How many ball and socket joints are present in human body?

A. 2 B. 4
C. 6 D. 8

Q.622 A disease associated with joints is:

A. Glucoma
B. Arthritis
C. Jacob's syndrome
D. Sprain

Q.623 It is an outcome of irregularities in metabolism of nitrogenous wastes:

A. Osteoporosis
B. Osteoarthritis
C. Gout
D. Rheumatoid arthritis

Q.624 Skeletal muscles are controlled by:

A. Autonomic nerves
B. Somatic nerves
C. Sympathetic nerves
D. Parasympathetic nerves

Q.625 The generation of excitation-contraction coupling involve all of the following events except:

A. Hydrolysis of ATP to ADP
B. Generation of endplate potential
C. Release of Ca^{2+} from troponin
D. Formation of cross linkages between actin and myosin

Q.626 The phosphogen that helps in the regeneration of ATP from ADP during muscle contraction in vertebrates is:

A. ADP
B. Inositol phosphate
C. Arginine phosphate
D. Creatine phosphate

Q.627 Major constituent of muscles is:

A. Fats
B. Proteins
C. Minerals
D. Carbohydrates

Q.628 Bones can release and take up minerals by:

A. Homeostasis
B. Positive feedback mechanism
C. Feedback mechanism
D. Negative feedback mechanism

Q.629 All of the following are the similarities between bones and cartilage except:

A. Both are types of connective tissues
B. Both contains collagen
C. Both contains living cells
D. Both have rich blood supply

Q.630 Select the false pair:

A. Compact bone – Site of blood production
B. Spongy bone – Light and porous
C. Compact bone – Dense and strong
D. Spongy bone – Bone marrow in cavities

Q.631 Which of the following is analogous to phagocytic cells?

A. Stem cells
B. Osteocytes
C. Osteoblasts
D. Osteoclasts

Q.632 Pinna of ear has _____ cartilage.

A. Hyaline
B. Fibro
C. Elastic
D. Bony

Q.633 The only movement possible on pivot joint is:

A. Forward and backward
B. Upward and downward
C. Rotation
D. Extension

Q.634 Pick the correct pair from the following:

A. Ligament – Bone to muscle attachment
B. Tendon – Bone to bone attachment
C. Ligament – Collagen proteins
D. Tendon – Elastic in nature

Q.635 Cerebellum of hindbrain control and coordinates movement of:

A. Cardiac muscles
B. Skeletal muscles
C. Smooth muscles
D. Papillary muscles

Q.636 Identify the correct option from the following:

	Features	**Smooth muscles**	**Cardiac muscles**	**Skeletal muscles**
A.	Appearance	Unstriped	Regular stripes	Irregular stripes
B.	Cell shape	Conical	Cylindrical	Spindle
C.	Control	Voluntary	Involuntary	Voluntary
D.	Speed of contraction	Slow	Intermediate	Slow to rapid

Q.637 Earliest form of muscles to be evolved is:

A. Smooth muscles
B. Cardiac muscles
C. Skeletal muscles
D. Striped muscles

Q.638 Skeletal muscles have striped appearance due to:

A. Myofilaments
B. Sarcolemma
C. Sarcomere
D. A & I band

Q.639 Cross bridges are:

A. Globular heads of actin
B. Globular tails of actin
C. Globular heads of myosin
D. Globular tails of tropomyosin

Q.640 Binding sites for the attachment of cross bridges are present on:

A. Actin
B. Troponin
C. Myosin
D. Tropomyosin

Q.641 The displacement of tropomyosin for the exposure of binding site is due to:

A. Shortening of I-band
B. Neuromuscular junction
C. Attachment of Ca+2 with troponin
D. Activation of T-system

Q.642 The degree of contraction of muscles depends upon_____ that participate in contraction:

A. Numbers of myofibrils
B. Numbers of myofilaments
C. Numbers of fibers
D. Numbers of sarcomeres

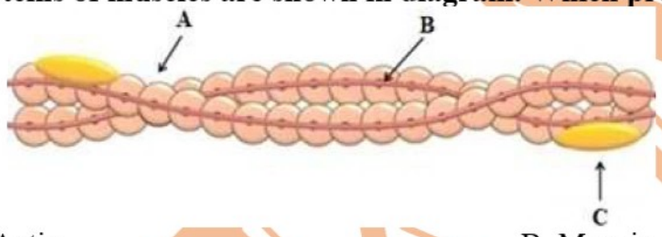
Q.643 Levered movement of bones is possible only because of:

A. Extension movement of muscles
B. Antagonistic movement of muscles
C. Flexion movement of muscles
D. Synergistic movement of muscles

Q.644 It is not the effect of exercise on muscles:

A. Hypertrophy
B. Increase strength
C. Increased mitochondria
D. Hyperplasia

Q.645 Proteins of muscles are shown in diagram. Which protein is shown by Alphabet C?



A. Actin
B. Myosin
C. Tropomyosin
D. Troponin

Q.646 Layer of connective tissue around a muscle fiber is:

A. Epimysium
B. Endomysium
C. Perimysium
D. Sarcolemma

Q.647 An energy providing molecule present in sarcoplasm of muscle cell is:

A. Myoglobin
B. Hemoglobin
C. Creatine phosphate
D. Albumin

Q.648 Which of the following/s is/are the features of skeletal muscle cell?

A. Multiple oval shaped nuclei
B. Abundant sarcoplasmic reticulum
C. Contains muscle fibrils
D. All A, B, C

Q.649 Area between two thick filaments is:

A. A band
B. H zone
C. I band
D. M line

Q.650 Sarcoplasmic reticulum is different from smooth endoplasmic reticulum of other cells in:

A. Having no ribosomes
B. Having specialized repeating pattern
C. Having stored calcium
D. Having cisternae

Q.651 Majority of muscles in human body are

A. Skeletal
B. Cardiac
C. Smooth
D. Sphincters

Q.652 What is fate of corpus luteum after fertilization?

A. Degenerates
B. Remains functional
C. Stops secretions
D. Releases egg

Q.653 More than one fertilization at a time in humans result in:

A. Identical twins
B. Fraternal twins
C. Clones
D Drones

Q.654 Which is possible function of smooth muscles?

A. Pumping blood
B. Expanding lungs
C. Propelling food
D. Controlling defecation

Q.655 All of the following are true about osteocytes except:

A. They are mature cells
B. They communicate with bone cells
C. Perform demineralization of bones
D. They respond to stress and load

Q.656 This is a disorder of muscles that occurs due to some hormonal abnormality:

A. Muscular cramp
B. Tetany
C. Fatigue
D. Tetanus

Q.657 Living cells of human endoskeleton are embedded in the matrix of protein called:

A. Collagen
B. Vimentin
C. Myosin
D. Keratin

Q.658 In skeletal muscles:

A. Myofibrils contain myofilaments
B. Myofibrils contain myofibers
C. Myofilaments contain myo-bundles
D. Muscle fibers contain muscle bundles

Q.659 The reason that an A-band within a sarcomere appears darker than adjacent I-bands is that:

A. Myofibrils are narrower in diameter at A-bands
B. Multiple nuclei tend to cluster within the A-bands
C. The cell membrane is opaquer near A-bands
D. A-bands contain both actin and myosin

Q.660 Smooth muscle fibers can be distinguished from striated ones because smooth fibers:

A. Contract more rapidly
B. Lack regular arrangements of sarcomeres
C. Lack gap junctions
D. Contain only actin filaments

Q.661 Regarding skeletal muscle structure, the area which contains only thick filaments is:

A. A band
B. I band
C. H-zone
D. Z line

Q.662 For muscle contraction, Ca^{2+} in sarcoplasm are released from:

A. T-tubule
B. Triad
C. Sarcoplasmic reticulum
D. Motor unit

Q.663 Spondylosis is a:

A. Autoimmune disease
B. Related to sciatica
C. Degenerative disorder
D. May affect the whole skeletal system

Q.664 In tetanus infection, which one is true?

A. Tetanospasmin is blocked
B. Sarcolemma is ruptured
C. Muscles are unable to relax
D. Virus attacks neurons

Q.665 Skeletal muscles have all properties except:

A. Moves the skeleton
B. Speed of contraction is always slow
C. Multinucleated
D. Have voluntary control

Q.666 Smallest structure in muscle tissue which can show contraction is:

A. Thick filament
B. Myofibre
C. Myofilament
D. Sarcomere

Q.667 Thin filaments are directly attached with:

A. Z-line
B. A-line
C. M-line
D. I-line

Q.668 During rest condition, tropomyosin covers the sites at:

A. Myosin
B. Actin
C. Troponin
D. Vimentin

Q.669 Which is not the common site of sprain injury?

A. Head and neck
B. Wrist
C. Ankle
D. Knee

Q.670 Maximum adaptation for varying degree of force of contraction is found in:

A. Skeletal muscles
B. Cardiac muscles
C. Smooth muscles
D. All muscles

Q.671 Peristaltic movements are possible because of:

A. Cardiac muscles
B. Skeletal muscles
C. Smooth muscles
D. Sphincter muscles

Q.672 Which type of cartilage is the most abundant in human body?

A. Hyaline cartilage
B. Elastic cartilage
C. Fibrocartilage
D. Surface cartilage

Q.673 Which of the following is not an important function of bone?

A. Regulation of ion concentration
B. Muscular contraction
C. Organ and nerve protection
D. Regulation of pH through hydration

Q.674 T-tubule is the part of:

A. Myofibril
B. Neuron
C. Endoplasmic reticulum
D. Sarcolemma

Q.675 Which of the following is correctly matched?

	Feature	Bone	Cartilage
A.	Blood vessels	×	✓
B.	Living Cells	✓	×
C.	Collagen	✓	✓
D.	Calcium phosphate	✓	✓

Q.676 In gouty arthritis, levels of _____ are very high due to metabolic disorder.

A. Urea
B. Uric acid
C. Albumin
D. Bilirubin

Q.677 Which of the following acts as shock absorber in vertebral column?

A. Synovial fluid
B. Spinal fluid
C. Ligaments
D. Intervertebral disc

Q.678 In cartilaginous joints, the joint cavity is:

A. Small
B. Absent
C. Large
D. Irregular

Q.679 Outer covering of bone is called:

A) Perichondrium
B) Pericardium
C) Peritoneum
D) Periosteum

Q.680 All of the following are the examples of fibrous joints, EXCEPT:

A) Sutures
B) Pubic symphysis
C) Roots of teeth (Gomphosis)
D) Jawbones (Socket in the maxilla or mandible)

Q.681 Mature bone cells are:

A) Osteoblasts
B) Stem cells
C) Osteoclasts
D) Osteocytes

Q.682 The flexible part of nose and ear pinna is made up of:

A) Tendon
B) Ligament
C) Elastic cartilage
D) Hyaline cartilage

Q.683 It is the most rigid form of connective tissue:

A) Blood
B) Tendon
C) Bone
D) Ligament

Q.684 Bone resorption is the responsibility of:

A) Osteoblasts
B) Osteoclasts
C) Osteocytes
D) Chondrocytes

Q.685 Pick up the diameter of a myofibril is

A. 1 – 2 µm
B. 7 – 8 µm
C. 16 – 18 µm
D. 10 – 100 µm

Q.686 Muscle is a specialized tissue of origin:

A) Ectodermal
B) Mesodermal
C) Endodermal
D) Epidermal

Q.687 Sarcoplasmic reticulum stores _____ ions:

A) Magnesium
B) Calcium
C) Potassium
D) Hydrogen

Q.688 Where can we find Z-line in the fine structure of skeletal muscles myofibril?

A) In the mid of A-band
B) In I-band
C) In the mid of H-zone
D) Along the I-band

Q.689 These cells contain numerous filaments of special protein actin and myosin:

A) Nerve cells
B) Gland cells
C) Muscle cells
D) Bone cells

Q.690 Each light band is called:

A) I band
B) A band
C) H zone
D) M line

Q.691 Troponin binds to all of the following, EXCEPT:

A) Ca^{+2} ion
B) Actin
C) Tropomyosin
D) Myosin

Q.692 The sites where the motor nerve impulse is transmitted from the nerve endings to the skeletal muscle cell membranes are called:

A) Z lines
B) Sarcomeres
C) Myofilaments
D) Neuro muscular junctions

Q.693 Which one of the following changes occur when skeletal muscle contracts?

A) I-band shortens only
B) A band shortens and Z-lines move farther apart
C) I-band shortens and Z-lines get closer
D) Actin filament contracts

Q.694 These muscles show regular alternate light and dark bands:

A) Striated
B) Smooth
C) Cardiac
D) Skeletal

Q.695 Myofilament is made up of:

A) Actin filament only
B) Thick filament only
C) Thin filament only
D) Thick and thin filament both

Q.696 Thin myofilaments consist of:

A) Actin: Myosin: Troponin
B) Actin, Tropomyosin: Troponin
C) Actin, Tropomyosin: Hemoglobin
D) Actin, Myoglobin: Troponin

Q.697 Pick up the thickest part of muscle between origin and insertion:

A) Tendon
B) Myofilament
C) Thick filament
D) Belly

Q.698 Pick up a skeletal muscle cell:

A) Myofibril
B) Muscle bundle
C) Myofilament
D) Muscle fiber

Q.699 These muscles are striated and involuntary:

A) Smooth
B) Skeletal
C) Cardiac
D) Circular

Q.700 The thick filament is about_____in diameter:

A) 7 nm
B) 2 µm
C) 16 µm
D) 16 nm

Q.701 Cross bridges are part of:

A) Troponin
B) Myosin
C) Actin
D) Tropononin

Q.702 The thousands of T-tubules of each muscle cell are collectively called:

A) Triad
B) Sarco-tubules
C) T-system
D) Neuromuscular junction

Q.703 Cytoplasm of the muscle fibre is known as:

A) Axoplasm
B) Protoplasm
C) Sarcolemma
D) Sarcoplasm

Q.704 These muscles are found in the blood vessels, digestive tract and many other organs:

A) Cardiac
B) Smooth
C) Striped
D) Skeletal

Q.705 When cross bridges contract, they pull the thin actin filament towards the?

A) Left side of the sarcomere
B) Ends of the sarcomere
C) Right side of the sarcomere
D) Centre of the sarcomere

Q.706 Thin filaments are 7-8 nm thick and are composed chiefly of _____ molecule:

A) Myosin
B) Actin
C) Myoglobin
D) Tropomyosin

Q.707 The study of muscles is called:

A) Mycology
B) Myology
C) Osteology
D) Neurology

Q.708 According to _____ theory, the actual length of actin myosin filament does not change but actin filament slide over myosin filament:

A) Induce fit model
B) Fluid mosaic model
C) Lock and key model
D) Sliding filament model

Q.709 _____ muscles are long and spindle shaped with each containing a single nucleus:

A) Striated
B) Smooth
C) Cardiac
D) Skeletal

Q.710 Myofibrils within the muscle fibers contain thick and thin filaments made up of _____ and _____respectively:

A) Myosin: actin
B) Globulin: albumin
C) Troponin: tropomyosin
D) Fibrin: fibrinogen

Q.711 Rigor mortis occurs due to the:

A) Deficiency of ATP
B) Death of that person
C) Access of ATP
D) Deficiency of water

Q.712 A connective tissue attaching bone with a bone is called:

A) Tendon B) Ligament
C) Hyaline cartilage D) Elastic cartilage

Q.713 _____ joints are the most mobile type of joints:

A) Cartilaginous B) Synovial
C) Fibrous D) Pivot

Q.714 It yields ATP during muscle contraction?

A) Glycogen B) Cholesterol
C) Myoglobin D) Creatine phosphate

Q.715 _____ is found at the movable joint:

A) Elastic cartilage B) Hyaline cartilage
C) Fibrocartilage D) Chondrocyte

Q.716 The joint between carpometacarpal of the thumb is called:

A) Pivot joint B) Saddle joint
C) Gliding joint D) Hinge joint

Q.717 Fibrocartilage is found in the:

A) Knee B) Disks located between the vertebrae
C) Ends of long bones D) Nose

Q.718 The joint between atlas and axis is called:

A) Angular joint B) Pivot joint
C) Hinge joint D) Saddle joint

Q.719 Which of the following joints allows no movement?

A) Cartilaginous joint B) Synovial joint
C) Fibrous joint D) Ball and socket joint

Q.720 Hip joint is an example of:

A) Hinge joint B) Ball and socket joint
C) Fibrous joint D) Synovial joint

Q.721 _____ develops in people who have high level of uric acid in their blood:

A) Osteoarthritis B) Rheumatoid arthritis
C) Acute arthritis D) Gouty arthritis

Q.722 It is inflammatory or degenerative disease that damages the joints:

A) Disc slip B) Spondylosis
C) Sciatica D) Arthritis

Q.723 The primary function of muscle is to produce:

A) Nerve impulse B) Movement
C) Hormone D) ATP

Q.724 Pick up the most common type of arthritis:

A) Rheumatoid arthritis B) Osteoarthritis
C) Gouty arthritis D) Acute arthritis

Q.725 Which one of the following provides main support to the synovial joint?

A) Collagen B) Tendons
C) Ligament D) Muscle

Q.726 Intercalated discs are characteristic feature of:

A) Smooth muscle B) Cardiac muscle
C) Skeletal muscle D) Visceral muscle

Q.727 Bone dissolving cells are:

A) Osteoblasts B) Chondrocytes
C) Osteoclasts D) Osteocytes

Q.728 Stimulation of a muscle fiber by a motor neuron occurs at:

A) The neuromuscular junction B) The transverse tubules
C) The myofibril D) The sarcoplasmic reticulum

Q.729 Outer covering of cartilage is called:

A) Perichondrium B) Pericardium
C) Peritoneum D) Periosteum

Q.730 Hyaline cartilage is found at all of the following, EXCEPT:

A) In the nose B) Ends of long bones
C) Larynx and trachea D) Knee

Q.731 The living cells of cartilage are called:

A) Thrombocytes B) Erythrocytes
C) Osteocytes D) Chondrocytes

Q.732 The most abundant type of cartilage in human body is:

A) Tendon B) Ligament
C) Hyaline cartilage D) Elastic cartilage

Q.733 It covers ends of the bone at the joint:

A) Tendon B) Ligament
C) Cartilage D) Collagen

Q.734 These are specialized cells for movement:

A) Neurons B) Muscles
C) Nephrons D) Chondrocytes

Q.735 The muscles that are attached to the skeleton and are associated with the movement of bones:

A) Striated B) Smooth
C) Cardiac D) Skeletal

Q.736 _____ muscles were the earliest form of muscle to evolve and it is found throughout animal kingdom:

A) Smooth B) Cardiac
C) Skeletal D) Striped

Q.737 All of the following are the key words for smooth muscle, EXCEPT:

A) Earliest form B) Non-striated
C) Involuntary D) Pump blood

Q.738 Thin filaments of muscles contain _____chains of actin molecules:

A) Four B) One
C) Three D) Two

Q.739 Elastic cartilage is found in the:

A) End. of long bones B) In the knee
C) In the nose D) Epiglottis

Q.740 Each muscle fibre is surrounded by a modified cell membrane called:

A) Sarcomere B) Sarcolemma
C) Myofilament D) Myosin filament

Q.741 A sarcomere is the region of a myofibril between two successive:

A) M-lines B) Z-lines
C) I-bands D) T-tubules

Q.742 According to sliding filament theory, when muscle fibers are stimulated by nervous system, which of the following changes occur?

A) H-zone becomes more visible B) I band shortens
C) A-band broadens D) Z-line moves farther apart

Q.743 Diameter of a myofibril is

A. 1 – 2 µm B. 7 – 8 µm
C. 100 – 1000 µm D. 10 – 100 µm

Q.744 The currently popular model of muscle fiber contraction is called:

A) Induce fit model B) Lock and key model
C) Sliding filament model D) Fluid mosaic model

Q.745 They also regulate the calcium release from bone tissue to blood:

A) Chondrocytes B) Osteoblasts
C) Osteocytes D) Osteoclasts

Q.746 Both bones and cartilage consist of living cells embedded in the matrix of protein called:

A) Collagen B) Myosin
C) Globulin D) Myoglobin

Q.747 Each A band has a lighter stripe in its mid-section called:

A) M line B) Z line
C) Sarcomere D) H zone

Q.748 Its length is determined by thick filament:

A) I-band B) H-zone
C) A-band D) Z-line

Q.749 Z line lies between two consecutives:

A) Thick filaments B) Thin filaments
C) Actin filaments D) Microfilaments

Q.750 The vertebrate possesses_____ kinds of muscle cells:

A) Two B) Three
C) Four D) Five

Q.751 A mechanoenzyme protein that, in the form of thick filaments, interacts with actin to bring about the contraction of muscle cells called:

A) Troponin
B) Actin
C) Myosin
D) Myoglobin

Q.752 Overlapping of thick and thin filaments occurs in:

A) I-band
B) A-band
C) M-band
D) Z-band

Q.753 These muscles are primarily involved locomotory actions:

A) Smooth
B) Cardiac
C) Skeletal
D) Unstriped

Q.754 When muscle is required to contract calcium ions bind with?

A) Actin
B) Myosin
C) Troponin
D) Tropomyosin

Q.755 The smallest contractile unit of muscle fibre is:

A) Myofibril
B) Sarcolemma
C) Myofilament
D) Sarcomere

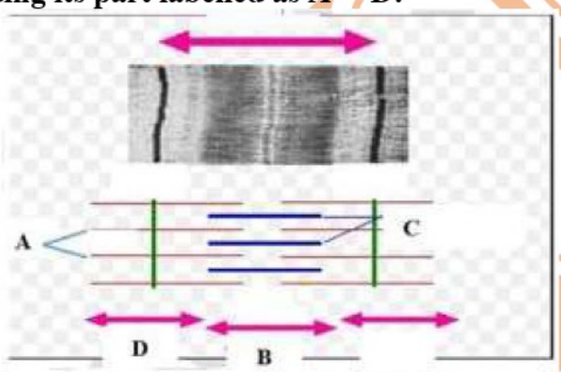
Q.756 The thin filaments in a myofibril are composed chiefly of:

A) Myosin molecule
B) Actin molecule
C) Troponin molecule
D) Tropomyosin molecule

Q.757 Each muscle bundle consists of:

A) Muscle fibers
B) Muscles
C) Myofibrils
D) Myofilaments

Q.758 The figure shows ultrastructure of skeletal muscle fiber. Choose the correct option regarding its part labelled as A —D:



A) I-band
B) A-band
C) Thin filaments
D) Z-line

Q.759 Which ions are required for muscle contraction?

A) Potassium
B) Magnesium
C) Calcium
D) Sodium

Q.760 Each myosin filament is surrounded by _____ actin filaments on each end:

A) Two
B) Six
C) Eight
D) Ten

Q.761 The sites where two or more bones meet are called:

A) Junction
B) Sutures
C) Joints
D) Linkages

Q.762 A type of fibrous connective tissues that attaches muscle to bones:

A) Cartilage
B) Tendon
C) Collagen
D) Myosin

Q.763 _____ muscles are involved in changes of body postures:

A) Cardiac
B) Skeletal
C) Smooth
D) Unstriped

Q.764 At these joints, pair of muscles are arranged in the same plane as that of joint:

A) Hinge
B) Synovial
C) Ball and socket
D) Fibrous

Q.765 Select the correct matching of the type of the joint with the exam le in human skeletal system:

	Types of joints	Example
A)	Cartilaginous joint	Between frontal and parietal bones
B)	Pivot joint	Between third and fourth cervical vertebrae
C)	Hinge joint	Between humerus and pectoral girdle
D)	Gliding joint	Between carpals

Q.766 The type of joint between human skull bones is called:
A) Cartilaginous joint B) Hinge joint
C) Fibrous joint D) Synovial joint

Q.767 The joints that allow the movement in several directions are:
A) Fibrous joints B) Hinge joints
C) Cartilaginous joints D) Ball and socket joints

Q.768 The joints of wrist and ankle are called:
A) Cartilaginous joints B) Synovial joints
C) Fibrous joints D) Ball and socket joint.

Q.769 _____ form of arthritis caused by bacterial invasion, and treated with antibiotics:
A) Rheumatoid B) Chronic
C) Gouty D) Acute

Q.770 _____ arthritis is symmetrical poly arthritis of unexplained cause:
A) Rheumatoid B) Osteoarthritis
C) Gouty D) Acute

Q.771 It can cause inflammation of any joint:
A) Rheumatoid arthritis B) Osteoarthritis
C) Gouty arthritis D) Acute arthritis

Q.772 All of the following are the examples of synovial joints, EXCEPT:
A) Hinge joint B) Pivot joint
C) Gliding joint D) Pubic symphysis

Q.773 The type of joint found in the bones of skull and bones of pelvic gridle is:
A) Synovial joint B) Cartilaginous joint
C) Fibrous joint D) Hinge joint

Q.774 It is an example of freely movable joint:
A) Synovial joint B) Hinge joint
C) Pivot joint D) Fibrous joint

Q.775 The distal end of femur makes a:
A) Hinge joint B) Ball and socket joint
C) Multistage joint D) Pivot joint

Q.776 Joint formed by the proximal end of femur is:
A) Hinge joint B) Ball and socket joint
C) Fibrous joint D) Pivot joint

Q.777 When muscle is required to contract, calcium ions bind with the:
A) Tropomyosin molecule B) Actin molecule
C) Troponin molecule D) Collagen molecule

Q.778 Chronic arthritis is mostly genetic in origin including all of the following, EXCEPT:
A) Rheumatoid arthritis B) Osteoarthritis
C) Gouty arthritis D) Acute arthritis

Q.779 Cartilage forming cells are called:
A) Epithelial cells B) Hepatocytes
C) Osteocytes D) Chondrocytes

Q.780 The most abundant type of cartilage is found in/at the:
A) External pinnae of ears B) Epiglottis.
C) Movable joints D) Knee

Q.781 All of the following are the key words for skeletal muscle, EXCEPT:
A) Striped B) Striated
C) Voluntary D) Peristalsis

Q.782 _____ are bone destroying cells:
A) Chondrocytes B) Osteoblasts
C) Osteocytes D) Osteoclasts

Q.783 Pick up the most rigid form of connective tissue:

A) Epimysium B) Bone
C) Blood D) Cartilage

Q.784 A red pigment that stores oxygen within the muscle cell called:

A) Haemoglobin B) Myoglobin
C) Myosin D) Actin

Q.785 They play an essential role in respiratory mechanics and help in maintaining posture and balance:

A) Cardiac muscles B) Skeletal muscles
C) Smooth muscles D) Unstriped muscles

Q.786 Pick up the earliest form of muscles:

A) Smooth muscles B) Cardiac muscles
C) Skeletal muscles D) Striped muscles

Q.787 Joints are classified on the basis of the amount of movement allowed by them, into:

A) Many categories B) Four categories
C) Two categories D) Three categories

Q.788 The bones that make up the ankle joint are called:

A) Carpals B) Tarsals
C) Metatarsals D) Metacarpals

Q.789 A type of arthritis characterized by accumulation of uric acid crystals in the moveable joints:

A) Rheumatoid arthritis B) Acute arthritis
C) Osteoarthritis D) Gouty arthritis

Q.790 Intercalated discs are found in:

A) Cardiac muscle B) Smooth muscle
C) Skeletal muscle D) Visceral muscle

Q.791 The joint between radius and ulna is:

A) Fibrous joint B) Cartilaginous joint
C) Pivot joint D) Multistage joint

Q.792 _____ is the most common type of arthritis, can cause inflammation of _____:

A) Osteoarthritis, pivot joint B) Osteoarthritis, any joint
C) Gouty arthritis, any joint D) Rheumatoid arthritis, hinge joint

Q.793 Smooth muscles are located in all of the followings, EXCEPT:

A) Intestines B) Bladder
C) Blood vessels D) Diaphragm

Q.794 Each myosin filament is surrounded by _____ actin filaments on _____

A) 6, both ends B) 12, both ends
C) 7, each end D) 10, both ends

Q.795 Troponin is a complex of _____ polypeptide chains:

A) Two B) Three
C) Four D) Five

Q.796 At these joints, at least two pairs of muscles present perpendicular to each other:

A) Fibrous joints B) Cartilaginous joints
C) Hing joints D) Ball and socket joints

Q.797 These are undifferentiated cells and have ability to divide:

A) Osteoblasts B) Osteocytes
C) Osteoclasts D) Osteogenic cells

Q.798 The shoulder and hip joints are examples of:

A) Fibrous joints B) Hinge joints
C) Cartilaginous joints D) Ball and socket joints

Q.799 These cells secrete collagen:

A) Osteoblasts B) Fibroblasts
C) Osteoclasts D) Osteogenic cells

Q.800 The study of bones and cartilage is called:

A) Arthrology B) Osteology
C) Myology D) Angiology

Q.801 Elastic cartilage found in the _____ and _____:

A) Larynx, trachea B) Vertebrae, knee
C) Ear flaps, epiglottis D) Nose, knee

Q.802 _____ are short bands of long fibrous connective tissue that function to connect one bone to another bone in the joint:

A) Collagen B) Cartilage
C) Ligaments D) Tendon

Q.803 Synovial joint is the most _____ type of joints:

A) Immoveable B) Rigid
C) Stationary D) Mobile

Q.804 _____ results from a metabolic disorder:

A) Osteoarthritis B) Rheumatoid arthritis
C) Gouty arthritis D) Acute arthritis

Q.805 It provides flexibility to the body:

A) Tendon B) Ligament
C) Cartilage D) Bone

Q.806 Each muscle fibre within the fascicle is covered by a layer of connective tissue called the:

A) Epimysium B) Perimysium
C) Endomysium D) Sarcomere

Q.807 The hardest working muscle in the body are:

A) Skeletal B) Cardiac
C) Smooth D) Voluntary

Q.808 H-zone is bisected by _____ line:

A) Z B) M
C) A D) I

Q.809 Pick up the structural and functional unit of muscle fibre:

A) Thin filament B) Thick filament
C) A band D) Sarcomere

Q.810 Thick filaments are called:

A) Actin B) Myosin
C) Troponin D) Tropomyosin

Q.811 The knee joint is one of the _____ and _____ joint in the body:

A) Smallest, complex B) Largest, simple
C) Largest, complex D) Smallest, simple

Q.812 The end of muscle attached with moveable bone is called:

A) Origin of muscle B) Insertion of muscle
C) Belly of muscle D) Flexing of muscle

Q.813 Connective tissue that secretes elastin called:

A) Osteoblast B) Fibroblast
C) Chondrocyte D) Osteoclast

Q.814 The fluid filled space in bone and cartilage, where their cells are present called:

A) Synovial B) Lacuna
C) Medullary cavity D) Cranial cavity

Q.815 They are equipped with phagocytic like mechanisms similar to circulating macrophages:

A) Osteoblasts B) Osteocytes
C) Osteoclasts D) Chondrocytes

Q.816 Arthritis is the leading cause of disability over the age of:

A) 40 B) 65
C) 75 D) 45

Q.817 Based on location there are _____ types of muscles:

A) 2 B) 3
C) 4 D) 5

Q.818 The joint in which articulating bones are separated by a fluid containing joint cavity called:

A) Fibrous joint B) Synovial joint
C) Cartilaginous joint D) Hing joint

Q.819 Thick myofilament in the centre sections of sarcomeres of muscle cells called:

A) Troponin B) Tropomyosin
C) Myosin D) Actin

Q.820 The chief inorganic constituent of bone is needle like crystals of:

A) Calcium chloride B) Hydroxyapatite
C) Magnesium phosphate D) Bicarbonate

Q.821 Pick up the currently popular model of muscle fiber contraction:

A) Lock and key model
B) Induce fit model
C) Fluid mosaic model
D) Sliding filament model

Q.822 What is sarcomere?

A) Part between two A-bands
B) Part between two H-zones
C) Part between two I-bands
D) Part between two Z-lines

Q.823 The calcium ions released during a muscle fibre contraction attach with:

A) Tropomyosin
B) Myosin
C) Actin
D) Troponin

Q.824 The degree of contraction of muscle fibre depends upon the _____ of fibers that participate in contraction:

A) Size
B) Number
C) Volume
D) Strength

Q.825 Pick up the outer covering bone:

A) Perichondrium
B) Pericardium
C) Peritoneum
D) Periosteum

Q.826 There are _____ main types of cartilage:

A) 2
B) 3
C) 4
D) 5

Q.827 Dense parallel bundles of connective tissue that strengthen joints and hold bones in place called:

A) Ligaments
B) Tendon
C) Cartilage
D) Osteocytes

Q.828 Inflammation in joints due to degeneration in the cartilage present at the joins or due to decreased lubricant production at the joints:

A) Rheumatoid arthritis
B) Acute arthritis
C) Osteoarthritis
D) Gouty arthritis

Q.829 Chondrocytes in cartilage are surrounded by non-living matrix of:

A. Muscles
B. Osteocytes
C. Ligaments
D. Collagen protein

Q.830 T-tubule extends & encircles the myofibril at _____.

A. A-band
B. A-I Junction
C. I-band
D. M-line

Q.831 The joints which fix teeth into the jaws are:

A. Fibrous joints
B. Cartilaginous joints
C. Synovial joints
D. Pivot joints

Q.832 The T-tubule and sarcoplasmic reticulum form:

A. Muscle fiber
B. T system
C. Triad
D. Z disc

Q.833 Each muscle is enclosed by a sheath called:

A. Epimysium
B. Perimysium
C. Sarcolemma
D. Endomysium

Q.834 A branched uni-nucleated muscle fiber having spontaneous contractions would be present in:

A. Heart
B. Pyloric sphincter
C. Small intestine
D. Biceps

Q.835 All or none phenomenon is applicable on each:

A. Muscle bundle
B. Muscle fiber
C. Muscle fibril
D. Muscle filament

Q.836 Throwing of a ball by a player is made possible by:

A. Fibrous joint
B. Cartilaginous joint
C. Synovial joint
D. Hinge joint

Q.837 In skeletal muscle cell, T-tubule is present at:

A. A-I junction
B. M-line
C. Z-line
D. I-band

Q.838 In skeletal muscles, T-tubules surrounds myofibril at the level of:

A. I band
B. A band
C. Z line
D. M line

Q.839 Cross bridges are found on:

A. Actin B. Myosin
C. Troponin D. Tropomyosin

Q.840 Inflammation of the joint is known as:

A. Sciatica B. Arthritis
C. Spondylosis D. Disc-slip

Q.841 In process of muscle contraction, _____ is brought closer, _____ shortens and _____ disappears.

A. Z line, H zone, I base B. I band, Z line, H zone
C. Z line, I band, H zone D. H zone, I band, I base

Q.842 Pivot joint is formed between:

A. Radius, ulna & humerus B. Upper ends of radius & ulna
C. Lower ends of radius & ulna D. Ulna & humerus

Q.843 The functional unit of contractile system in striated muscle is:

A. Myofibril B. Cross bridges
C. Z-band D. Sarcomere

Q.844 In which of the following muscle protein, polypeptide chains are more than two?

A. Myosin tail B. Tropomyosin
C. Troponin D. Myoglobin

Q.845 Which of the following event will not occur in muscle contraction according to sliding filament model?

A. A-band shortens B. Z-lines come closer
C. I-band shortens D. H-zone disappears

Q.846 Muscles that are attached to bones and have voluntary movements are termed as __ muscles.

A. Cardiac B. Smooth
C. Skeletal D. Involuntary

Q.847 What structure marks the separation between two sarcomeres?

A. I-band B. H-zone
C. A-band D. Z-disc

Q.848 Inflammation of the joint is known as:

A. Sciatica B. Arthritis
C. Spondylosis D. Disc-slip

Q.849 The shoulder joint is an example of:

A. Saddle joint B. Synovial joints
C. Ball & socket joint D. Hinge joints

Q.850 At the start of a muscle contraction, calcium ions are released from:

A. Actin B. T tubule
C. Motor neuron D. Sarcoplasmic reticulum

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Cartilage

Q.851 Cartilage is a form of:

A. Cardiac tissue B. Connective tissue
C. Epithelial tissue D. Nervous tissue

Q.852 Which type of cartilage is the most abundant in human body?

A. Hyaline cartilage B. Elastic cartilage
C. Fibrocartilage D. None of these

Q.853 Which of the following is not an important function of bone?

A. Regulation of ion concentration B. Muscular contraction
C. Organ and nerve protection D. Regulation of pH through hydration

Q.854 Which of the following cells secrete flexible, elastic, non-living matrix collagen?

A. Osteocytes B. Osteoclasts
D. Chondrocytes D. Osteoblasts

Q.855 Cartilage has living cells that are called:

A. Osteocytes B. Osteoblasts
C. Osteoclasts D. Chondrocytes

Q.856 What is not true about cartilage?

A. There are many blood vessels in the cartilage
B. It is a form of connective tissue

C. It covers ends of the bone at the joint
D. Both A and B

Q.857 What are osteocytes?
A. White blood cell
B. Bone cell
C. Brain cell
D. None of these

Q.858 Hyaline cartilage forms joint between:
A. Growing bone
B. Mature bones
C. Lamellar bone
D. Secondary bone

Q.859 Accumulation of crystals in cartilage is called:
A. Osteoarthritis
B. Gout
C. Pseudogout
D. None

Q.860 The fibrous connective tissue which attaches bone to bone is called:
A. Tendon
B. Ligament
C. Reticular tissue
C. Cartilage

Types of muscles

Q.861 Which one of the following is not a character of cardiac muscles?
A. Striated and branched
B. Multinucleated
C. Self-excitatory
D. None of these

Q.862 Muscles are composed of:
A. Silica
B. Polyester threads
C. Group of cell fibers
D. Calcium and phosphorus

Q.863 Skeletal muscles are made up of:
A. Actin
B. Myosin
C. Both A & B
D. Actin, myosin and tropomyosin

Q.864 Cardiac muscles differ from skeletal muscles by which of the following property?
A. Structure
B. Involuntary control
C. Calcium binding protein
D. Sarcotubular system

Q.865 Vertebrates have which of the following?
A. Cardiac muscles
B. Skeletal muscles
C. Smooth muscles
D. ALL A, B, C

Q.866 It is a property of cardiac myocytes:
A. Voluntary control
B. Unstripped
C. Fatigue resistance
D. Spindle shaped cell

Q.867 Why skeletal muscles are called striated muscles?
A. Appear darker than smooth muscles by naked eye
B. Alternating dark and light bands appear on their surface when visualized by naked eye
C. Alternating dark and light bands appear on their surface when visualized via a microscope
D. All of these

Q.868 Smooth muscles, cardiac muscles and organs are regulated by which of the following?
A. Central nervous system
B. Parasympathetic nervous system
C. Sympathetic nervous
D. Autonomic system

Q.869 Striated skeletal muscle cells are under:
A. Voluntary control
B. Involuntary control
C. Both A and B
D. None of these

Q.870 Which of the following muscle fiber contains single nucleus?
A. Smooth muscle
B. Cardiac muscle
C. Both A and B
D. Skeletal muscle

Q.871 Which of the following grouping is incorrect?
A. Skeletal, striated, voluntary
B. Cardiac, striated, involuntary
C. Cardiac, striated, voluntary
D. Both B and C

Q.872 An entire skeletal muscle is surrounded by:
A. Sarcolemma
B. Microtubules
C. Both A and B
D. Epimysium

Q.873 The fibrous connective tissue which attaches muscle to bone is called:
A. Tendon
B. Ligament
C. Reticular tissue
D. Cartilage

Q.874 What is true about skeletal muscle cell?
A. It has light and dark band
B. It has only one muscle
C. It is under involuntary control
D. None of these

Q.875 It is present in cardiac muscles but absent in smooth muscles:

A. Tropomyosin B. Actin
C. Troponin D. Myosin

Q.876 Which of the following muscles is involuntary and non-striated?

A. Skeletal muscle B. Smooth muscle
C. Cardiac muscle D. None

Q.877 Which is not true for cardiac muscle?

A. No distinct nucleus B. Branched
C. Involuntary D. Intercalated disc

Q.878 Unique feature of cardiac muscle cell is:

A. Intercalated disc B. Involuntary
C. Striation D. All

Q.879 Skeletal muscle associated with skeleton form:

A. Body movement B. ATP
C. Skeletal system D. Heat

Q.880 Cardiac muscles are found in:

A. Gut B. Heart
C. Bladder D. Limbs

Structure of skeletal muscles

Q.881 What structure marks the separation between two sarcomeres?

A. I band B. H zone
C. A band D. Z disc

Q.882 Skeletal muscle is composed of?

A. Muscle fibrin B. Muscle fibers
C. Sarcomere D. None of these

Q.883 Sarcoplasm of the muscle fiber is similar to

A. Cytoplasm of other cell B. Nucleoplasm
C. Mitochondria D. Cell membrane

Q.884 Sarcomere attach end to end to form:

A. Myofibril B. Muscles
C. Muscle fiber D. None of these

Q.885 Line at center of A band is:

A. Z line B. M line
C. H zone D. I band

Q.886 Which of the following is anisotropic?

A. A band B. I band
C. M line D. Z line

Q.887 Region between two successive Z lines is:

A. Sarcomere B. H zone
C. M line D. A band

Q.888 Cross bridges are found on:

A. Actin B. Myosin
C. Troponin D. Tropomyosin

Q.889 The main unit of thick filament is:

A. Myofibril B. Actin
C. Myosin D. Z-line

Q.890 Myosin filaments are how many times thick as compared to actin filament?

A. 3 times B. 6 times
C. 4 times D. 8 times

Q.891 Which of the following is not true about muscle fibers?

A. Better developed for slow sustained activities
B. For energy, they depend on anaerobic procedures
C. Myoglobin content is high
D. Possess mitochondria in huge numbers

Q.892 A smallest contractile unit of muscle contraction called sarcomere is the area between two?

A. H zone B. M line
C. Z line D. Z zone

Q.893 Which of the following is true about sarcomeres?

A. Actin filaments are only found in the I band
B. The sarcomeres contribute to the striated appearance of smooth muscle cells
C. Sarcomeres are functional units of skeletal and smooth muscle cells
D. A band contains both actin and myosin filaments

Q.894 What is located at both sides of the A band?

A. Z-line
B. H zone
C. I band
D. Z zone

Q.895 Which of the following occurs during muscular contraction?

A. Actin slides over myosin
B. ATP supplies energy
C. Calcium ions are involved
D. All of these

Q.896 Which of the following is true about the organization of actin filaments and myosin in sarcomeres?

A. Myosin filaments appear thinner than actin filaments
B. Prior to contraction, there is no overlap between actin and myosin
C. The degree of overlap of actin and myosin affects the overall contractions
D. All of these

Q.897 Which of the following is the name of the modified endoplasmic reticulum found in muscle cells?

A. T-tubule
B. Sarcomere
C. Cytoplasmic reticulum
D. Sarcoplasmic reticulum

Q.898 Muscles are composed of?

A. Silica
B. Polyester threads
C. Groups of cell fibers
D. Calcium and phosphorous

Q.899 How many thin filaments are arrayed around each thick filament within a sarcomere?

A. 2
B. 4
C. 6
D. 8

Q.900 Dark bands of skeletal muscles are:

A. Z-band
B. A band
C. I band
D. H zone

Q.901 How much of the body heat is produced by muscle tissue?

A. 15%
B. 55%
C. 30%
D. 85%

Q.902 A disc-like protein that is centrally found in sarcomeres is:

A. H line
B. I line
C. M line
D. Z line

Q.903 The functional unit of contractile system in striated muscle is:

A. Myofibril
B. Cross bridges
C. Z band
D. Sarcomere

Q.904 The length of the following is reduced when muscle contracts:

A. H-zone
B. I-band
C. Sarcomere
D. Both A & B

Q.905 The contractile protein of skeletal muscle involving ATPase activity is:

A. Actin
B. Myosin
C. Troponin
D. Tropomyosin

Q.906 Many sarcomeres in series make up the length of a:

A. Microtubules
B. Myofibril
C. Myosin filament
D. M-line

Q.907 Which is most likely to extend the entire length of a muscle fiber?

A. Sarcomere
B. Myofibril
C. Myosin filament
D. M-line

Q.908 The A band further divides by:

A. Z-line
B. A band
C. H zone
D. Z zone

Q.909 A muscle of fascicle is a:

A. Bundle of connective tissue
B. Bundle of myofibrils
C. Bundle of muscle fibres
D. Muscle cells

Q.910 The space between two Z lines constitutes the:

A. Sarcolemma
B. Sarcophagus
C. Sarcoplasm
D. None of these

Q.911 Bright region in A band is:

A. M line
B. Z line
C. H zone
D. Sarcomere

Q.912 Myofilament is made of:

A. Protein
B. Lipids
C. Carbohydrates
D. All of these

Q.913 Major regulatory protein in muscle is:

A. Myosin
B. Myosin-actin
C. Troponin-tropomyosin
D. Troponin-tropomyosin-actin

Q.914 Sarcoplasm is different form cytoplasm:

A. It contains sarcoplasmic reticulum
B. It contains glycogen
C. It contains glycogen and oxygen binding protein, myoglobin
D. All of these

Mechanism of skeletal muscle contraction

Q.915 According to sliding filament theory of muscle contraction, which of the following are functions of ATP?

A. ATP does all of these things during muscle contraction
B. It allows the myosin head to detach from the actin filament
C. It moves tropomyosin off of actin binding sites
D. Both A and B

Q.916 What type of enzyme is myosin?

A. ATP synthase
B. ATP hydrolase
C. ADP hydrolase
D. ADP synthase

Q.917 Which of the following proteins does not play a fun force-tension curve of muscle contraction?

A. Titin
B. Myosin
C. Actin
D. All of these

Q.918 Calcium during muscle contraction binds with:

A. Tropomyosin
B. Troponin C
C. Troponin I
D. Troponin T

Q.919 When a muscle fiber shortens, the following shortens:

A. Actin filament
B. Sarcomere
C. Both A and B
D. Myosin

Q.920 Rigor mortis after death results due to which?

A. Decrease in body temperature after death.
B. Accumulation of rigid proteins molecules in sarcoplasm
C. Death of tissue due to unavailability of 02.
D. Unavailability of ATP, which is necessary to break

Q.921 What is hydrolysed during muscle contraction?

A. ACP
B. ADP
C. NAD
D. ATP

Q.922 Actin and myosin are _____ proteins.

A. Globular
B. Fibrous
C. Functional
D. Both A and B

Q.923 Skeletal muscles cause:

A. Constriction of blood vessels
B. Heart beat
C. Dilation of pupil
D. Eye movement

Q.924 Which of the following is true of troponin and tropomyosin?

A. Troponin binds to myosin and tropomyosin binds to actin
B. Tropomyosin binds to actin and prevents the myosin head from binding to actin
C. Both a and b
D. None of these

Q.925 How many ATP are required for one cycle of muscle contraction and relaxation?

A. 1
B. 3
C. 2
D. 4

Q.926 The contraction of muscle by actin and myosin is described by which biological theory?

A. Endosymbiotic theory
B. Central Dogma theory
C. Cross-bridge theory
D. Sliding filament theory

Q.927 The muscle which moves a body part away from the midline of the body is:

A. Flexor muscles
B. Extensor muscles
C. Adductor muscles
D. Abductor muscles

Q.928 During a muscular contraction, which of the following elements maintains constant length?

A. I band
B. H zone
C. A band
D. Sarcomere

Q.929 Which of the following step occurs immediately after binding of Ca^{2+} with troponin molecule during muscle contraction?

A. Binding sites of actin get attached to the myosin head
B. Troponin uncovers the actin binding sites
C. Ca^{2+} goes back inside sarcoplasmic reticulum
D. Tropomyosin gets removed from the binding sites of actin filaments

Q.930 What occurs when the thin actin and thick myosin filaments slide past each other?

A. Muscle relaxation
B. Muscle contraction
C. Muscle twitch
D. None of these

Q.931 The muscle which moves a body part towards the midline of the body is:

A. Flexor muscles
B. Extensor muscles
C. Adductor muscles
D. Abductor muscles

Q.932 Which of the following action is caused by skeletal muscle:

A. Constriction of blood vessel
B. Eye movements
C. Heartbeat
D. Dilation of pupil

Q.933 Which of the following molecules binds to troponin during muscle contraction, triggering tropomyosin to move away from the actin binding sites and allowing the myosin head to form a cross bridge?

A. ADP
B. Calcium
C. Sodium
D. ATP

Q.934 What is the purpose of calcium in the muscles?

A. It helps move the myosin head into a high-energy position
B. It allows tropomyosin to be pulled away from the actin filament
C. Both a and b
D. None of these

Q.935 Which of the following proteins directly interacts with the myosin-binding site on actin?

A. Tropomyosin
B. Troponin
C. both a and b
D. none of these

Q.936 Which of the following sections of a sarcomere does not shorten during contraction?

A. I band
B. H zone
C. A band
D. None of these

Q.937 Which of the following does not occur during skeletal muscle contraction?

A. ATP is hydrolysed
B. Calcium binds to myosin heads
C. Both A and B
D. None of these

Q.938 Which two proteins are the major components of myofibrils, allowing for muscle fibre contraction?

A. Myosin and cartilage
B. Actin and myosin
C. Lamellae and actin
D. Only myosin

Q.939 Tropomyosin binds to _____and prevents the myosin from sliding up the actin filament.

A. Myosin
B. Actin
C. Myosin filament
D. Both B and C

Q.940 Nerves that are innervating muscle fibers are called:

A. Sensory nerves
B. Motor neurons
C. Cranial nerves
D. Optic nerve

Q.941 Which disappears during muscles contractions?

A. M line
B. H zone
C. Z line
D. A band

Q.942 Role of sarcoplasmic reticulum prior to muscle contraction:

A. It actively pumps calcium ions into its lumen
B. It releases calcium ions by active transport
C. It creates the proteins needed to cover the actin filaments
D. It releases calcium once an actin potential reaches the sarcolemma

Types of joints

Q.943 Which of the following movements are possible in pivot joint?

A. Flexion and extension
B. Adduction and abduction
C. Rotation
D. Extension flexion and rotation

Q.944 Type of synovial joints:

A. Hinge joint
B. Ball and socket joint
C. Both A and B
D. Fibrous joint

Q.945 Humerus forms joints with:

A. Clavicle
B. Sternum
C. Hyoid
D. Tibia

Q.946 Which joint is present in neck, due to which it shows movement?

A. Pivot joint
B. Saddle joint
C. Hinge joint
D. Ball and socket joint

Q.947 The hinge joint and ball and socket joints are the types of:

A. Freely movable joints
B. Slightly movable joints
C. Immovable joints
D. None of these

Q.948 Fluid present in synovial joint is:

A. Synovial fluid
B. Pericardial fluid
C. Plural fluid
D. Interstitial fluid

Q.949 Metacarpal joint is an example of:

A. Condyloid joint
B. Saddle joint
C. Hinge joints
D. Ball and socket joint

Q.950 The connection between two bones is:

A. Joint
B. Tendon
C. Suture
D. Fissure

Q.951 Joints in which both muscle and bone are in same phase angle:

A. Ball and socket
B. Fibrous
C. Cartilaginous
D. Hinge joint

Q.952 Which of the following comes under structural classification?

A. Synchondroses
B. Sutures
C. Gomphosis
D. All of these

Q.953 Joints are classified on the basis of:

A. The amount of movement allowed by them
B. Nature of structure they have
C. Type of bones they join
D. Both B and C

Q.954 Cartilaginous joints have:

A. Slight movement
B. Free movement
C. No movement
D. Both A and B

Q.955 A type of joint found at the articulation between teeth and the sockets of the maxilla is:

A. Syndesmosis
B. Sutures
C. Gomphosis
D. None of these

Q.956 Humerus forms _____ joint with scapula.

A. Ball and socket
B. Hinge
C. Pivot
D. Fibrous

Q.957 Which the following is not the unique features of synovial joint?

A. Articular capsule
B. Synovial fluid
C. Articular cartilage
D. Fibrocartilage

Q.958 How many types of joints are present in body?

A. 3
B. 4
C. 5
D. 2

Q.959 In cartilaginous joint:

A. Joint cavity is absent
B. Joint cavity is present
C. Both A and B
D. None

Q.960 Syndesmosis is present between:

A. Short bones
B. Long bones
C. Short and long bone
D. Can be present any where

Q.961 Xiphisternal joint is present between:

A. Body of clavicle and xiphoid process
B. Body of sternum and xiphoid process
C. Body of clavicle and xiphoid process
D. Body of femur and xiphoid process

Gout and arthritis

Q.962 Inflammation of joint is known as:

A. Sciatica B. Arthritis
C. Spondylosis D. Disc-slip

Q.963 All of the following are inflammatory arthritis except:

A. Rheumatoid Arthritis B. Osteoarthritis
C. Gouty arthritis D. Osteomyelitis

Q.964 Chronic arthritis is:

A. Rheumatoid arthritis B. Osteoarthritis
C. Gouty arthritis D. None

Q.965 Most chronic and inflammatory type of arthritis is:

A. Osteoarthritis B. Rheumatoid arthritis
C. Gout D. None

Q.966 Acute form of arthritis results from:

A. Fungal attack B. Bacterial attack
C. Viral attack D. Protist attack

Q.967 Gout results due to defective metabolism of:

A. Xanthine dehydrogenase B. Xanthine carboxylase
C. Xanthine hydrogenase D. Xanthine oxidase

Q.968 Most common site for autoimmune disease:

A. Skin and joint B. Muscles
C. A and B D. None

Q.969 An example of degenerative disease:

A. Rheumatoid arthritis B. Osteoarthritis
C. Gouty arthritis D. Osteomalcia

Out of Syllabus

Q.970 Sperms of liverworts, mosses, ferns move towards archegonia, in response to nucleic acid released by the ovum. This is an example of?

A. Chemotropic movement B. Chemonastic movement
C. Haptonastic movement D. Chemotactic movement

Q.971 Tibia is found in:

A. Skull B. Lower leg
C. Face D. Upper arm

Q.972 Biceps are:

A. Extensors B. Flexors
C. Adductors D. Abductors

Q.973 Roots of a plant show which of the following?

A. Positive phototropism and negative geotropism
B. Negative tactic movement and positive tropic movement
C. Positive geotropism of stem and roots
D. Negative phototropism and positive geotropism

Q.974 Rapid movement of leaves of mimosa on touching is an example of?

A. Tropic movements B. Growth movement
C. Nastic movement D. Turgor movement

Q.975 Triceps are:

A. Extensor muscles B. Flexor muscles
C. Abductive muscles D. Strongest muscles

Q.976 Cranium contains how many bones:

A. 2 B. 4
C. 8 D. 14

Q.977 How many bones humans have in the vertebral column?

A. 52 B. 25
C. 33 D. 34

Q.978 Human eye muscles contract in:

A. 0.01 sec B. 0.08 sec
C. 0.05 sec D. None of these

1	D	51	C	101	C	151	A	201	D	251	A	301	B	351	B	401	D
2	A	52	A	102	C	152	B	202	D	252	B	302	C	352	C	402	C
3	C	53	A	103	C	153	C	203	B	253	D	303	C	353	A	403	C
4	C	54	C	104	C	154	C	204	A	254	C	304	B	354	B	404	C
5	A	55	A	105	A	155	C	205	A	255	C	305	D	355	C	405	B
6	C	56	C	106	D	156	D	206	D	256	B	306	D	356	D	406	D
7	C	57	B	107	A	157	B	207	A	257	A	307	B	357	C	407	C
8	C	58	A	108	C	158	C	208	B	258	D	308	B	358	C	408	C
9	A	59	D	109	A	159	B	209	B	259	C	309	D	359	C	409	B
10	B	60	B	110	B	160	D	210	C	260	C	310	C	360	A	410	B
11	B	61	D	111	D	161	B	211	B	261	A	311	D	361	D	411	D
12	D	62	A	112	A	162	D	212	A	262	A	312	C	362	D	412	A
13	C	63	D	113	B	163	B	213	D	263	C	313	C	363	A	413	C
14	B	64	D	114	C	164	D	214	A	264	D	314	A	364	B	414	A
15	A	65	A	115	C	165	B	215	A	265	D	315	A	365	C	415	B
16	B	66	D	116	C	166	B	216	A	266	A	316	B	366	A	416	C
17	C	67	C	117	D	167	D	217	B	267	A	317	C	367	D	417	C
18	B	68	C	118	D	168	B	218	A	268	B	318	D	368	D	418	C
19	A	69	D	119	C	169	C	219	B	269	A	319	A	369	C	419	D
20	B	70	B	120	B	170	B	220	B	270	C	320	C	370	B	420	B
21	D	71	C	121	B	171	D	221	B	271	B	321	B	371	B	421	A
22	C	72	D	122	C	172	A	222	A	272	B	322	B	372	B	422	A
23	C	73	C	123	B	173	B	223	B	273	B	323	C	373	C	423	B
24	C	74	B	124	B	174	C	224	D	274	C	324	B	374	D	424	D
25	C	75	C	125	D	175	A	225	A	275	A	325	B	375	C	425	D
26	A	76	B	126	A	176	C	226	A	276	C	326	C	376	C	426	A
27	D	77	B	127	A	177	B	227	B	277	D	327	C	377	B	427	A
28	C	78	B	128	C	178	B	228	A	278	A	328	A	378	C	428	B
29	A	79		129	D	179	A	229	B	279	B	329	C	379	D	429	B
30	A	80		130	D	180	D	230	A	280	C	330	E	380	B	430	B
31	B	81	C	131	A	181	A	231	D	281	D	331	C	381	A	431	D
32	A	82	B	132	B	182	B	232	B	282	C	332	C	382	B	432	A
33	B	83	B	133	C	183	C	233	A	283	D	333	A	383	C	433	A
34	A	84	A	134	B	184	C	234	B	284	C	334	C	384	C	434	B
35	A	85	B	135	B	185	D	235	A	285	A	335	B	385	C	435	C
36	A	86		136	C	186	A	236	A	286	A	336	C	386	C	436	D
37	B	87		137	B	187	C	237	D	287	B	337	B	387	B	437	B
38	D	88		138	B	188	C	238	B	288	D	338	A	388	B	438	D
39	A	89		139	C	189	C	239	B	289	D	339	C	389	A	439	C
40	B	90		140	B	190	D	240	B	290	B	340	C	390	D	440	B
41	A	91		141	D	191	A	241	A	291	D	341	C	391	B	441	A
42	C	92	C	142	C	192	D	242	A	292	A	342	D	392	A	442	D
43	B	93	C	143	B	193	A	243	B	293	B	343	C	393	D	443	C
44	C	94	D	144	A	194	C	244	B	294	A	344	B	394	C	444	C
45	B	95	A	145	B	195	D	245	D	295	B	345	C	395	C	445	C
46	B	96	A	146	C	196	A	246	B	296	A	346	E	396	A	446	B
47	C	97	B	147	C	197	B	247	B	297	A	347	E	397	D	447	A
48	A	98	D	148	D	198	A	248	A	298	C	348	B	398	D	448	C
49	C	99	D	149	D	199	C	249	D	299	C	349	D	399	D	449	C
50	D	100	D	150	A	200	C	250	B	300	B	350	A	400	D	450	D

451	C	502	A	551	D	601	B	651	A	701	B	751	C	801	C	851	B	901	D	951	D	
452	C	502	C	552	A	602	D	652	B	702	C	752	B	802	C	852	A	902	D	952	D	
453	B	503	D	553	C	603	A	653	B	703	D	753	C	803	D	853	D	903	D	953	A	
454	D	504	D	554	A	604	A	654	C	704	B	754	C	804	C	854	D	904	B	954	A	
455	C	505	C	555	C	605	D	655	C	705	D	755	B	805	C	855	D	905	B	955	C	
456	C	506	A	556	B	606	A	656	B	706	B	756	B	806	C	856	A	906	B	956	A	
457	D	507	B	557	C	607	B	657	A	707	B	757	A	807	B	857	B	907	B	957	D	
458	C	508	A	558	B	608	A	658	A	708	D	758	B	808	B	858	A	908	C	958	A	
459	C	509	A	559	C	609	D	659	D	709	B	759	C	809	D	859	B	909	C	959	A	
460	A	510	B	560	C	610	D	660	B	710	A	760	B	810	B	860	B	910	D	960	B	
461	C	511	B	561	A	611	B	661	C	711	A	761	C	811	B	861	B	911	C	961	B	
462	A	512	C	562	B	612	B	662	C	712	B	762	B	812	B	862	C	912	A	962	A	
463	C	513	A	563	B	613	A	663	C	713	B	763	B	813	B	863	D	913	B	963	C	
464	D	514	D	564	C	614	D	664	C	714	D	764	A	814	B	864	B	914	D	964	A	
465	B	515	C	565	D	615	B	665	B	715	B	765	D	815	C	865	D	915	B	965	A	
466	D	516	B	566	B	616	B	666	D	716	B	766	C	816	B	866	C	916	B	966	B	
467	B	517	A	567	B	617	A	667	A	717	B	767	D	817	B	867	C	917	A	967	D	
468	B	518	D	568	B	618	D	668	B	718	B	768	A	818	B	868	D	918	C	968	A	
469	C	519	D	569		619	A	669	A	719	C	769	D	819	C	869	A	919	C	969	B	
470	C	520	D	570	B	620	A	670	A	720	B	770	A	820	B	870	A	920	D	970	A	
471	D	421	A	571	D	621	B	671	C	721	D	771	B	821	D	871	C	921	D	971	B	
472	A	522	D	572	A	622	B	672	A	722	D	772	D	822	D	872	D	922	B	972	B	
473	B	523	C	573	D	623	C	673	D	723	B	773	C	823	D	873	A	923	D	973	D	
474	D	524	B	574	A	624	B	674	D	724	B	774	A	824	B	874	A	924	B	974	D	
475	D	525	B	575	C	625	C	675	C	725	C	775	A	825	D	875	C	925	A	975	A	
476	B	526	A	576	D	626	D	676	B	726	B	776	B	826	B	876	B	926	D	976	C	
477	B	527	D	577	A	627	B	677	D	727	C	777	C	827	A	877	A	927	B	977	C	
478	D	528	A	578	D	628	D	678	B	728	A	778	D	828	C	878	A	928	C	978	D	
479	C	529	A	579		629	D	679	D	729	A	779	D	829	D	879	C	929	D	979		
480	C	530	D	580	C	630	A	680	B	730	D	780	C	830	B	880	B	930	B	980		
481	A	531	D	581	C	631	D	681	D	731	D	781	D	831	A	881	D	931	C	981		
482	A	532	B	582	B	632	C	682	C	732	C	782	D	832	C	882	B	932	B	982		
483	C	533	C	583	B	633	C	683	C	733	C	783	B	833	A	883	A	933	B	983		
484	B	534	C	584	B	634	C	684	B	734	B	784	B	834	A	884	A	934	B	984		
485	B	535	B	585	A	635	B	685	A	735	D	785	B	835	B	885	B	935	A	985		
486	B	536	D	586	C	636	D	686	B	736	A	786	A	836	C	886	A	936	C	986		
487	B	537	C	587	C	637	A	687	B	737	D	787	D	837	A	887	A	937	B	987		
488	B	538	B	588	D	638	D	688	B	738	D	788	B	838	C	888	B	938	B	988		
489	A	539	B	589	C	639	C	689	C	739	D	789	D	839	B	889	C	939	B	989		
490	A	540	A	590	C	640	A	690	A	740	B	790	A	840	B	890	A	940	B	990		
491	B	541	B	591	B	641	C	691	D	741	B	791	C	841	C	891	B	941	B	991		
492	C	542	B	592	C	642	C	692	D	742	B	792	B	842		892	C	942	B	992		
493	C	543	A	593	A	643	B	693	C	743	D	793	D	843	D	893	A	943	C	993		
494	C	544	B	594	A	644	D	694	D	744	C	794	B	844	C	894	C	944	C	994		
495	C	545	B	595	C	645	D	695	D	745	C	795	B	845	C	895	D	945	A	995		
496	C	546	A	596	A	646	B	696	C	746	A	796	D	846	C	896	C	946	A	996		
497	A	547	A	597	B	647	C	697	D	747	D	797	D	847	D	897	D	947	A	997		
498	C	548	C	598	A	648	D	698	D	748	C	798	D	848	B	898	C	948	A	998		
499	C	549	B	599	B	649	C	699	C	749	B	799	B	849	C	899	C	949	C	999		
500	C	550	A	600	C	650	B	700	D	750	B	800	B	850	D	900	B	950	A	1000		